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National Register Testing of Site 41BT427, Burnet County, Texas

Clayton M. Tinsley

Tiffany Osburn

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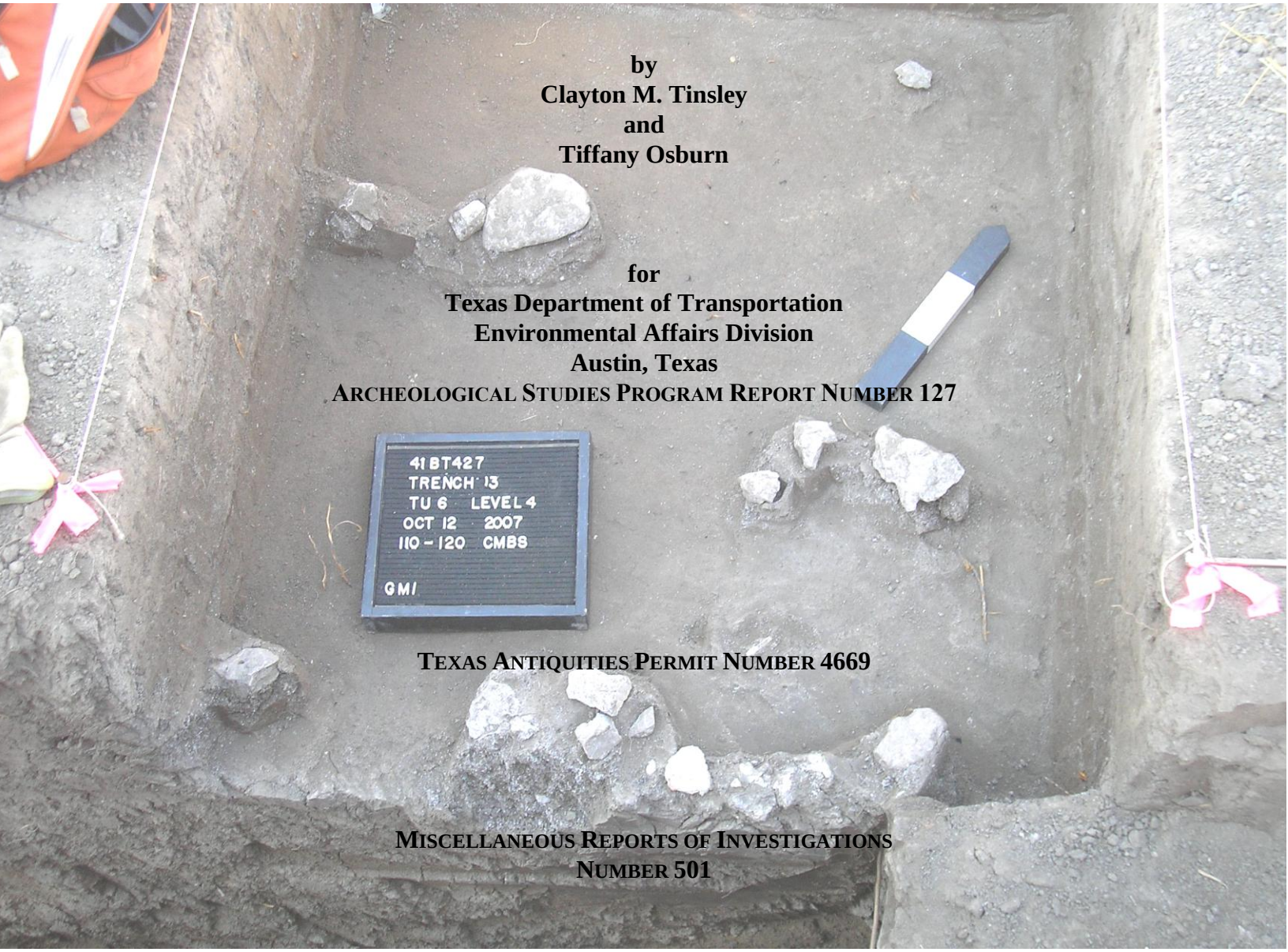
by
Clayton M. Tinsley
and
Tiffany Osburn

for
Texas Department of Transportation
Environmental Affairs Division
Austin, Texas

ARCHEOLOGICAL STUDIES PROGRAM REPORT NUMBER 127



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by
Clayton M. Tinsley
Tiffany Osburn

Principal Investigator
Melissa Green

for
Texas Department of Transportation
Environmental Affairs Division
118 East Riverside Drive
Austin, Texas 78704

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MANAGEMENT SUMMARY

Between October 1 and October 19, 2007, archeologists from Geo-Marine, Inc., conducted National Register of Historic Places eligibility testing at site 41BT427 in Burnet County, Texas, under contract to the Texas Department of Transportation, Environmental Affairs Division. This prehistoric site was originally recorded by PBS&J during a cultural resources survey for a proposed bridge replacement project at the North Rocky Creek crossing of FM 963 (CSJ 1198-02-017). During that investigation, the site was initially identified by a series of three trenches located on the northeastern quadrant of the right-of-way. Three small, burned rock features were originally recorded in two of the trenches.

During the current project by Geo-Marine, the bridge replacement area was again investigated. Thirteen trenches were dug within the project area: nine survey trenches in the northwest, southwest, and southeast quadrants outside the known boundary of site 41BT427, and four trenches within the site itself in the northeast quadrant. The current investigation within site 41BT427 involved the mechanical excavation of the four trenches (29.5 linear meters) and the hand excavation of eight test units (8.94 cubic meters) within the site boundary (an additional test unit was excavated south of the site boundary). Only one definable cultural component was identified at site 41BT427. This site appears to represent an ephemeral, short-term camp with a very sparse material signature. No diagnostic material was recovered during excavation. The single feature identified consisted of a very small, disarticulated cluster of six burned rocks and a limited amount of cultural material. The general lack of cultural material and feature/artifact associations within the site hampers the ability to draw conclusions regarding site function and prehistoric activity.

Due to the low artifact density and the lack of cultural features, site 41BT427 does not have the potential to make significant contributions to the knowledge of the region. Thus, site 41BT427 fails to meet the standards of Criterion D or any other significance standard required for assessing National Register eligibility. Site 41BT427 is recommended not eligible for National Register inclusion, and no further archeological investigations are recommended.

In addition to site testing, survey trenching (as well as an additional test unit) within the remaining three quadrants that was not completed during the initial PBS&J cultural resources survey was conducted as a part of this Geo-Marine investigation. Based on trench observations

and background research, this proposed borrow area is highly unlikely to contain archeological historic properties (36 CFR 800.16:[I]) or State Archeological Landmarks (13 TAC 26.12), and no further archeological investigations are recommended for these areas.

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ACKNOWLEDGEMENTS

The successful completion of the testing work at site 41BT427 would not have been possible without the opportunity and guidance provided by the Texas Department of Transportation, Environmental Affairs Division, archeologist Jon Budd. Geo-Marine's testing at site 41BT427 was carried out by Jennifer Anderson, Lana Martin, Bethany Oliver, and Matt Cuba under the supervision of Project Archeologist Tiffany Osburn and Principal Investigator Missi Green.

In the Geo-Marine laboratory, Steve Hunt and Bethany Oliver processed and recorded all excavated materials. Paleobotanical analyses were performed by Leslie Bush, Ph.D. Erin King produced the maps and diagrams in the report, and Sharlene Allday edited the text. Formatting and document production were handled by Denise Pemberton. Without their efforts, this project would not have been possible.

CHAPTER 1
INTRODUCTION

Texas Department of Transportation (TxDOT) proposes to replace the existing bridge and approaches along FM 963 at North Rocky Creek (CSJ 1198-02-017) in Burnet County, Texas. Cultural resources testing is required to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1969, as amended (Public Law [PL] 89-665), the Department of Transportation Act of 1966 (P.L. 89-670), and the Texas Antiquities Code (TAC), as incorporated into Title 98, Chapter 191, of the Natural Resources Code of Texas of 1977, as amended.

Site 41BT427, which is within the area of potential effects (APE) of the TxDOT project, was originally recorded in July 2007 by archeologists from PBS&J during a pedestrian survey of FM 963 for TxDOT (Nichols and Farabough 2007). Because the site will be affected by the proposed construction, TxDOT Environmental Affairs Division (TxDOT-ENV) contracted with Geo-Marine, Inc. (GMI), under contract/work authorization #57902SA005 to conduct National Register of Historic Places (NRHP) eligibility testing at site 41BT427. GMI archeologists conducted the testing investigations between October 1 and October 19, 2007 (GMI project number 22005.00.02). This current program of testing involved the excavation of a series of trenches on all four quadrants of the intersection of North Rocky Creek and FM 963, where feasible, within the APE (Figure 1). The APE is defined as the existing 80-foot wide right-of-way (ROW) and extending 400 feet on either side of the water line. The work was conducted under TAC permit #4669, and this report details the results of the investigations.

Thirteen trenches were dug within the project APE: nine survey trenches in the northwest, southwest, and southeast quadrants outside the known boundary of site 41BT427, and four trenches within the site itself in the northeast quadrant. The current investigation within site 41BT427 involved the mechanical excavation of the four trenches (29.5 linear meters) and the hand excavation of eight test units (8.94 cubic meters) within the site boundary. In addition to site testing, survey trenching of the proposed borrow area—the remaining three quadrants, with an additional test unit south of the known site boundary—that was not completed during the initial PBS&J cultural resources survey was conducted as a part of this GMI investigation.

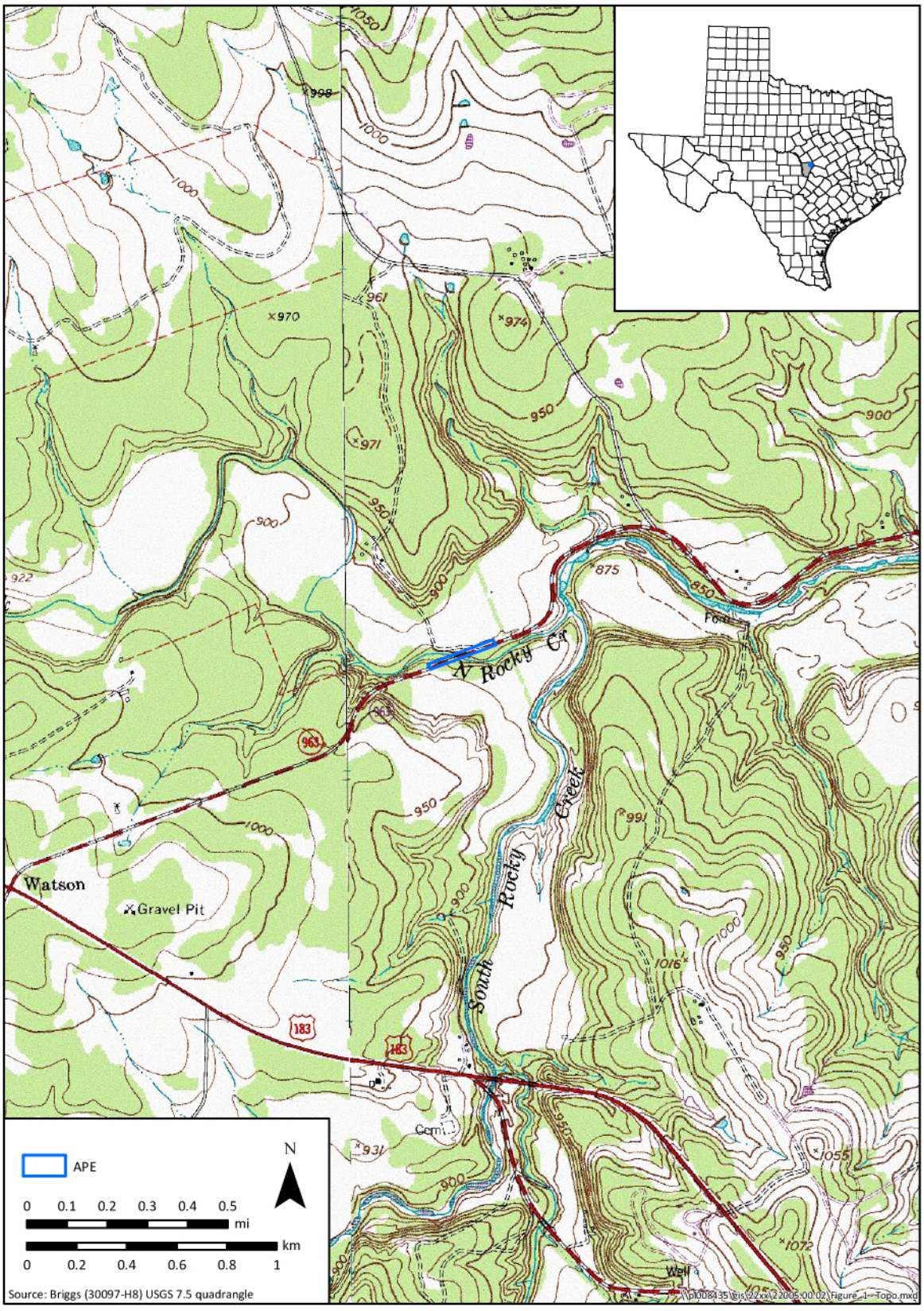

Figure 1. Location of the APE in Burnet County.

CHAPTER 2
ENVIRONMENTAL SETTING

INTRODUCTION

Site 41BT427 is located along North Rocky Creek (a tributary of the Lampasas River) within the Lampasas Cut Plain of the Edwards Plateau region of Central Texas. The Lampasas Cut Plain is essentially a northern extension of the Edwards Plateau (Johnson 2001). The topographic pattern of the plain, however, is entirely different from much of the Edwards Plateau because the dissection in the Lampasas Cut Plain is less severe. The region is characterized by mesa-type topography with wide lowlands intervening between the mesa uplands.

GEOLOGY AND SOILS

The flat-topped mesas of the region are capped with hard limestone, and the edges are margined by a typical rim-rock vegetation. The lowlands may have somewhat sloping surfaces, in which case, they usually are erosional and underlain with shallow caliche, or they may be completely reduced to flatness, in which case, they have a smooth constructional surface and thick soils (Johnson 2001). The Lampasas River is a major tributary of the Brazos River with a narrow valley of mapped Holocene alluvium less than 1 kilometer (km; 0.6 mile [mi]) wide. The soils in the project area are mapped as Oakalla silty clay loam (Figure 2), occasionally flooded (U.S. Department of Agriculture, Natural Resources Conservation Service [USDA, NRCS] 2010a). This soil unit is characterized as alluvium derived from limestone and is found on floodplains.

VEGETATION

The vegetation of the Lampasas Cut Plain is characterized by deciduous woodlands of Texas oak (Quercus *spp.)* and deciduous riparian forests of sugarberry (Celtis laevigata) and elm (Ulmus *L.*) (Johnson 2001). A mosaic of grasslands and woodlands characterizes the vegetation of the project area. Grasslands are mixed prairie, with tall, medium, and short grasses present. Upland trees and shrubs typically grow in mottes of oaks, juniper (*Juniperus* spp.), and agarito (*Mahonia trifoliata*). Yaupon (Ilex vomitoria) and deciduous holly (Ilex *spp.)*, elbowbush (*Forestiera pubescens)*, persimmon (Diospyros texana*)*, and sumac (*Rhus trilobata*) are common small trees

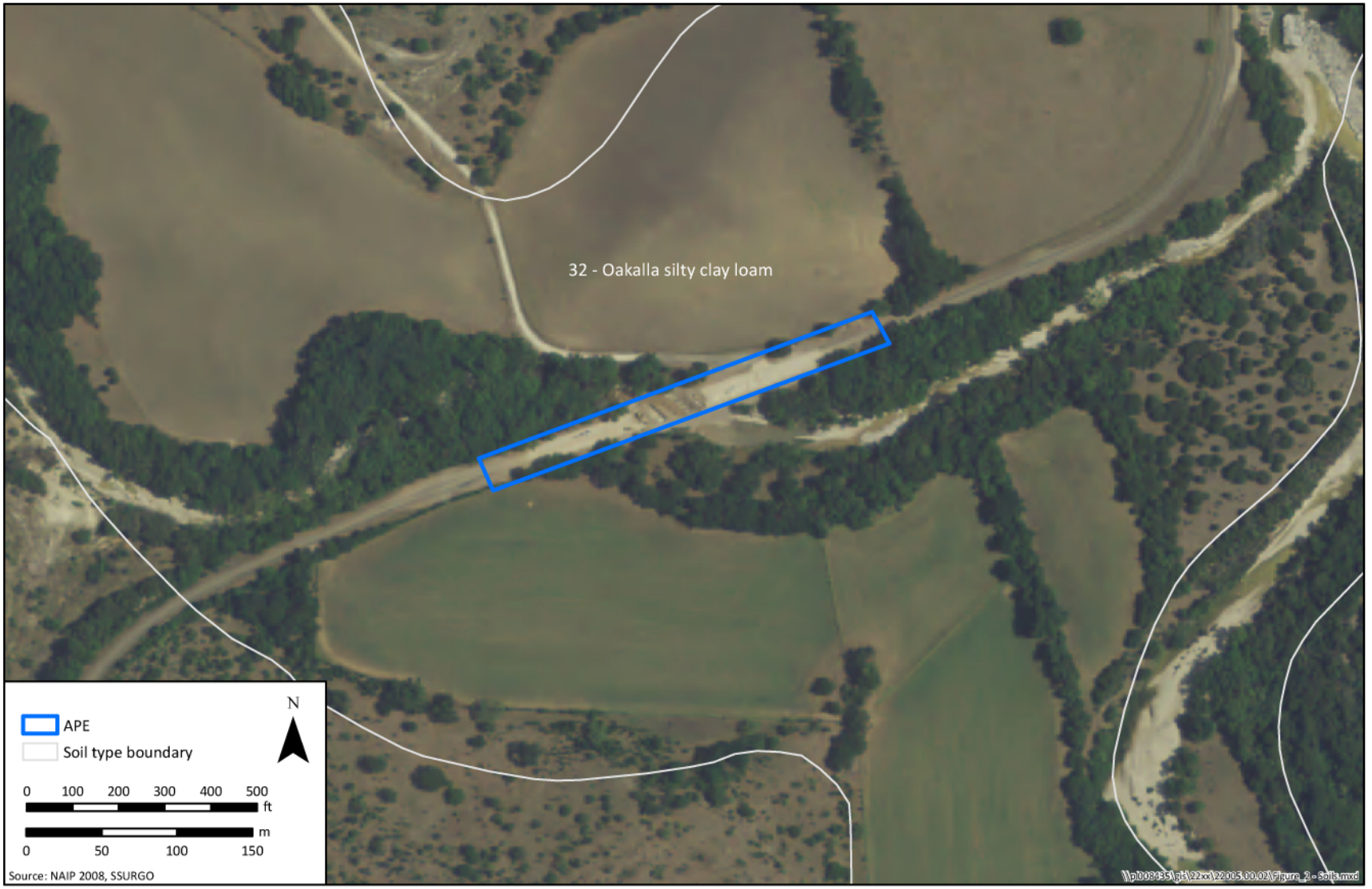

Figure 2. Aerial imagery showing soil types in the vicinity of the project area.

and shrubs. Moister areas along streams and mesic slopes support trees such as sycamore (*Platanus occidentalis*), pecan (*Carya illinoinensis*), hackberry (*Celtis* spp.), and elm (Beaty 1978; Riskind and Diamond 1988)

FAUNA

Site 41BT427 occupies an area at the intersection of the Edwards Plateau and Cross Timbers vegetation areas, creating a rich habitat for a variety of fauna. Native mammals common to the region in the prehistoric period include opossum (*Didelphis virginiana*), eastern mole (*Scalopus aquaticus*), eastern fox squirrel (*Sciurus niger*), pocket gopher (*Geomys breviceps*), hispid cotton rat (*Sigmodon hispidus*), eastern cottontail rabbit (*Sylvilagus floridanus*), coyote (*Canis latrans*), grey fox (*Urocyon cinereoargenteus*), mink (*Mustela vison*), muskrat (*Ondata zibethica*), raccoon (*Procyon lotor*), stripped skunk (*Mephitis mephitis*),white-tailed deer (*Odocoileus virginianus*), bison (*Bison bison*), and black bear (*Ursus americanus*) (Burt and Grossenheider 1976).

Amphibian and reptilian species of the region include Great Plains rat snake (*Elaphe guttata emoryi*), eastern yellowbelly racer (*Coluber constrictor*), yellow mud turtle (*Kinosternon flavescan*), bullfrog (*Rana catesbeiana*), and southern leopard frog (*Rana utricularia*) (Kutac and Caran 1994).

PALEOENVIRONMENT

Environmental and climatic conditions in Central Texas have changed dramatically since the terminal Pleistocene. Bryant and Holloway (1985) depict the Central Texas region as being dominated by deciduous forest until approximately 10,000 years ago. However, both Hall and Valastro (1995) and Toomy et al. (1993) argue that the region was primarily mesic grassland. The grassland hypothesis is supported in part by the megafauna recorded for the area during the late Pleistocene. Species such as mastodon, mammoth, giant bison, camel, and horse would have required extensive grassland resources (Dillehay 1974; Graham 1987; Toomey et al. 1993).

Subsequent to 10,000 years ago, climatic evidence suggests a gradual drying period with reduced ground cover vegetation (Toomey et al 1993). The general drying trend that began during the late Pleistocene is seen by Toomey et al. (1993) as continuing into the middle and late Holocene with a peak at approximately 5,000–2,500 years ago. Wetter and warmer conditions were resurgent in the region until approximately 1,500–1,000 years ago (Bryant and Holloway 1985; Johnson and Goode 1994). Conditions consistent with modern climatic trends were established from this point forward in Central Texas.

CHAPTER 3
REGIONAL CULTURAL HISTORY AND PREVIOUS INVESTIGATIONS

REGIONAL CULTURAL HISTORY

Several current regional chronologies (Black 1989; Collins 1995; Johnson and Goode 1994) are utilized in the following discussion of Central Texas prehistory. The regional chronology is divided into three basic periods: Paleoindian, Archaic, and Late Prehistoric, each of which is further subdivided in the following discussion (Table 1).

Table 1
Cultural Chronology for the Study Area

Period	Date
Paleoindian	10,000–6800 B.C.
Archaic	6800 B.C.–A.D. 750
Early Archaic	6800–4000 B.C
Middle Archaic	4000–2000 B.C.
Late Archaic	2000 B.C.–A.D. 750
Late Prehistoric	A.D. 750–1540
Austin Interval	A.D. 500–1200
Toyah Interval	A.D. 1200-1540
Historic	A.D. 1540–1900

After Black 1989; Collins 1995; Johnson and Goode 1994

Prehistoric Cultural Chronology

Paleo-Indian (10,000–6800 B.C.)

Human occupation in Central Texas is generally agreed to have begun during the terminal Pleistocene. This initial Paleo-Indian cultural period is dated to approximately 10,000–6800 B.C. (Black 1989; Collins 1995, 2004; Johnson and Goode 1994). In Central Texas, the Paleo-Indian period is divided into Early (10,000–8900 B.C) and Late (8900–6800 B.C.) subperiods. The Early Paleo-Indian period is characterized by fluted Clovis projectile points along with prismatic blade manufacture. Subsistence during this subperiod appears to have been diverse and consisted of both megafauna (e.g., mammoth and extinct large bison) as well as smaller taxa such as badger, alligator and moles (Collins et al. 1989). Prominent sites in the region with Early Paleo-Indian components include the Kincaid Rockshelter, Wilson-Leonard, and Gault sites. The Late Paleo-Indian continued with a mixed hunting-gathering tradition and is characterized by the Folsom and Plainview point types (Collins 1998). Burned rock features made their first appearance in Central Texas during the Late Paleo-Indian period (Masson and Collins 1995). Sites of note in the region with Late Paleo-Indian components include Wilson-Leonard, Golondrina-Barber, and St. Mary's Hall.

Archaic (6800 B.C.–A.D. 750)

Johnson and Goode's (1994) formulation of the Central Texas Archaic makes use of three subdivisions: Early Archaic (6800–4000 B.C.), Middle Archaic (4,000–2000 B.C.), and Late Archaic (2,000 B.C.–A.D. 750) based on point typologies.

Early Archaic (6800–4000 B.C.)

The Early Archaic in Central Texas is most known for its large burned rock midden sites that commonly constitute multiple tons of fire-cracked rock. Although burned rock middens are first noted in the Late Paleo-Indian period for Central Texas, they became a prominent site type by the Early Archaic. The Early Archaic is generally defined by three projectile point style intervals: Angostura, Early Split-stem, and Martindale-Uvalde (Johnson and Goode 1994). In addition to burned rock middens, site types include open campsites (Loeve, Wilson-Leonard, and Richard-Beene) and caves (Hall's Cave). Subsistence evidence for the Early Archaic is varied, with deer, small animal, fish, and plant bulb being common taxa. Pollen and fluvial geological evidence suggest that environmental conditions during the period fluctuated between mesic and xeric conditions (Collins 2004).

Middle Archaic (4000– 000 B.C.)

Bell/Andice/Calf Creek, Taylor, and Nolan/Travis constitute the three projectile point styles indicative of the Middle Archaic period (Johnson and Goode 1994). The Bell/Andice/Calf Creek point technology along with environmental data suggesting mesic conditions are seen by Collins (1994) as evidence for a focus on bison hunting. However, by the latter portion of the Middle Archaic, environmental conditions appear to have shifted again to being more xeric. The xeric

conditions of the latter Middle Archaic have been correlated with an increase in burned rock midden deposits, and this association is believed to have been due to a greater reliance upon tuberous plants such as sotol iris (Johnson and Goode 1994).

Late Archaic (2000 B.C.–A.D. 750)

According to Johnson and Goode (1994), the Late Archaic for Central Texas can be subdivided into (ascending chronological order) six style intervals: Bulverde, Pedernales/Kinney, Lange/Marshall/Williams, Marcos/Montell/Castroville, Ensor/Frio/Fairland, and Darl. The Late Archaic in Central Texas began with xeric conditions and progressively became more mesic. Burned rock midden deposits continue to be a significant part of many site assemblages and actually peak in density during the Pedernales/Kinney interval (Collins 2004). Dart points, corner-tanged knives, and cylindrical stone pipes are associated with Late Archaic site assemblages from Central Texas. A mixed hunting-gathering economy of large and small animals as well as various reliable plants of the region (e.g., stool iris and pecan) became well developed by the end of the Late Archaic and continued largely unchanged into the early Late Prehistoric.

Late Prehistoric (A.D. 750–1540)

The Late Prehistoric period of the region is divided into Early (Austin interval) and Late (Toyah interval) subperiods (Collins 2004; Johnson and Goode 1994). The evolution to the Late Prehistoric period in Central Texas is signaled by the introduction of bow and arrow technology that occurs during the Austin interval. Although the arrow point made its introduction in the Late Prehistoric, it is initially underrepresented when compared to dart points. The later Toyah interval of the Late Prehistoric is characterized by the dominance of the arrow point, specifically the Perdiz type. The constellation of Perdiz arrow points, locally manufactured ceramics, end scrapers, and prismatic blades is seen as an indication of a focus on large game animals (e.g., bison, deer, and antelope). Researchers currently disagree on whether this artifact assemblage represents a techno-complex (Ricklis 1994) or an actual cultural group (Johnson 1994).

Historic Period (A.D. 1540–1900)

The Historic period began with the arrival of the first Europeans in the area, Coronado's 1540–1542 expedition to the Plains of Cíbola, the High Plains west of the study area (Castañeda 1554[1904]). Coronado's chroniclers and those of later Spanish expeditions (e.g., Posada 1686[1982]) report that the region was occupied by Apacha (Apache) people. Based on Spanish descriptions of Apache lifeways—with limited sedentism and a seasonal round of bison hunting and foraging—it seems that the Garza and Toyah archeological complexes may represent early Apache occupations (Boyd 1997). In an alternative interpretation that has not yet gained traction in the Texas archeological community, Garza and other Late Prehistoric and Protohistoric assemblages have also been linked to the Wichita (Baugh and Perkins 2008; Roberts and Bradford 1997).

If Garza and/or Toyah indeed represent early Apache occupations, the Apache were the primary native group in the area until the early to mid-eighteenth century, when nomadic Comanche hunters arrived from the Great Basin and plains northwest of Texas (Lipscomb 2008). Various Anglo, French, and Spanish traders maintained commercial relationships with the Apache and Comanche, but the locations and timing of these interactions are debated; for instance, sites of the Spanish traders known as *comancheros* have not been securely identified because "no one is sure what they should look like" (Freeman and Boyd 1997:82). Shoshonean-speaking Comanche continued their presence in Central Texas until the end of the nineteenth century.

The area that was later established as Burnet County formed parts of both the Robertson and Austin-Williams Mexican land-grant colonies. However, at the time of Texas Independence, the majority of the land in the region was still public domain and unsettled (Bowden 1940). With the annexation of Texas by the United States in 1845, the region became an important location on the Comanche frontier with the establishment of the McCulloch's station, and later Fort Croghan. Burnet County was officially formed in 1852 from former parts of Travis, Bell, and Williamson counties (Bowden 1940). By 1860, the county had 2,487 residents and three communities; Smithwick, Oatmeal, and Backbone Valley (Bowden 1940). Cotton agriculture and stock rearing (cattle, sheep, and goats) formed the basis of the Burnet County economy in the nineteenth century and well into the modern period.

PREVIOUS INVESTIGATIONS

Prehistoric site 41BT427 was originally recorded by PBS&J during a cultural resources survey for the proposed bridge replacement project at the North Rocky Creek crossing of FM 963 (Nichols and Farabough 2007). The work was conducted in June and July 2007 and included pedestrian survey of the ROW as well as the excavation of four backhoe trenches in the northeastern quadrant. Cultural materials associated with site 41BT427 were identified in two of these trenches (PBSJ Trench 2 and PBSJ Trench 4). Three burned rock features were identified in the trench profiles. No artifacts were observed during that investigation, though mammal bone and charcoal were collected. Feature 1 was identified in PBSJ Trench 2 at a depth of 75 centimeters (cm) below surface (bs) and consisted of a linear concentration of burned limestone rocks with no associated staining or charcoal. Feature 2 was identified in PBSJ Trench 2 at a depth of 180 cm bs and consisted of a burned rock concentration with associated charcoal and mammal bone. Feature 3 was identified in PBSJ Trench 4 at a depth of 180 cm bs and contained only two burned rocks above a soil stain.

Trenching within the remaining three quadrants was not completed during the initial cultural resources survey but was undertaken as a part of this current investigation.

CHAPTER 4
RESEARCH METHODS

FIELD METHODS

The first stage of fieldwork consisted of the excavation of 13 backhoe trenches within the APE: four within the boundaries of site 41BT427 and nine survey trenches in the other three quadrants (Figure 3). The backhoe trenches were placed to sample every landform within the APE. Mechanical excavations were conducted with a toothed-bucket to various depths, with an estimated average of 20–30-cm depth intervals. The location of each trench was recorded using aglobal positioning system (GPS) device to record the position of both ends of every trench. Two archeological monitors were present during the trench excavations. The goal of monitoring mechanical excavations was to identify locations where artifact density was high enough to be readily detectable and therefore potentially exploitable for hand excavation. In general, one monitor watched the excavation to control depth and identify in situ materials, while the other monitor watched the backdirt as it was dumped. All trenches were carefully scraped, profiled, and recorded by the Project Archeologist. Standard soil taxonomy methods were used to provide a measured description of a representative wall from each trench. All of the trenches were photographed.

As specified in the scope of work, a series of hand-excavated 1-x-1-m test units was placed adjacent to each of the four trenches at site 41BT427, as well as one test unit adjacent to the trench south of the site (Figure 4). These units were placed on benches excavated adjacent to the trenches. The original survey conducted at this site recorded no cultural material above 75 cm and no material was identified during the current phase of trenching above this depth. Benches were excavated to approximately 65–75 cm bs around excavation units. This served to create a safety bench in accordance with Occupational Safety and Health Administration (OSHA) safety standards as well as remove culturally sterile overburden. The test units were excavated in 10-cm arbitrary levels from the level of the bench to depths ranging from 145–240 cm bs. Sediment from the test units was screened through 0.625 millimeter (mm; 0.25 inch [in]) hardware cloth. All lithic debris, chipped and ground stone tools, bone, and freshwater mussel shell were collected. *Rabdotus* snails were counted for each level, and burned and unburned rock was weighed and counted. Artifact counts and observations were made on standard unit-level forms. Flotation samples and samples for fine screening were collected from levels containing concentrations of cultural material, feature contexts, and nonfeature contexts in an effort to recover minute charred plant remains and artifacts.

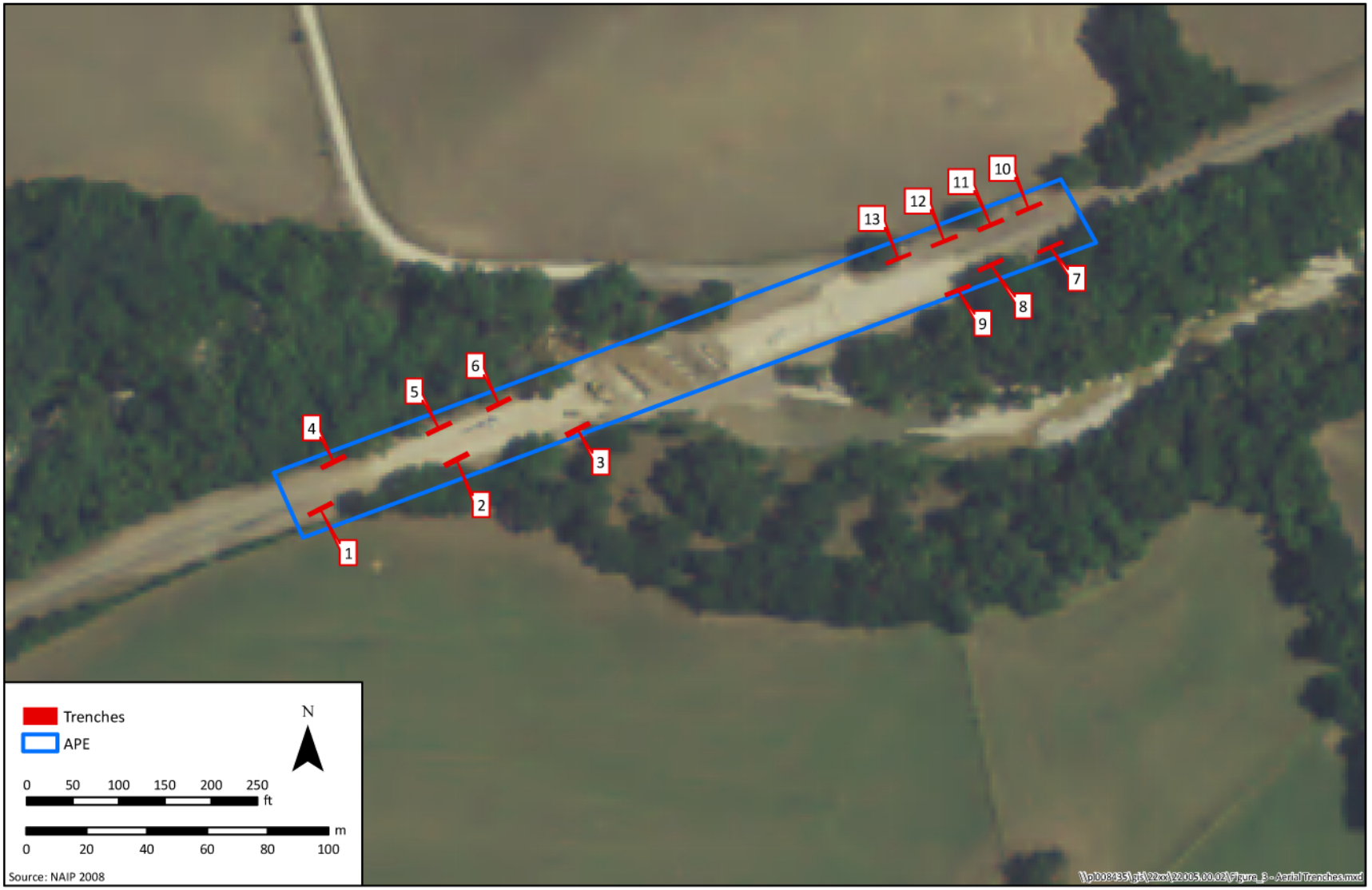

Figure 3. Location of trenches within the APE, FM 963 and North Rocky Creek, Burnet County.

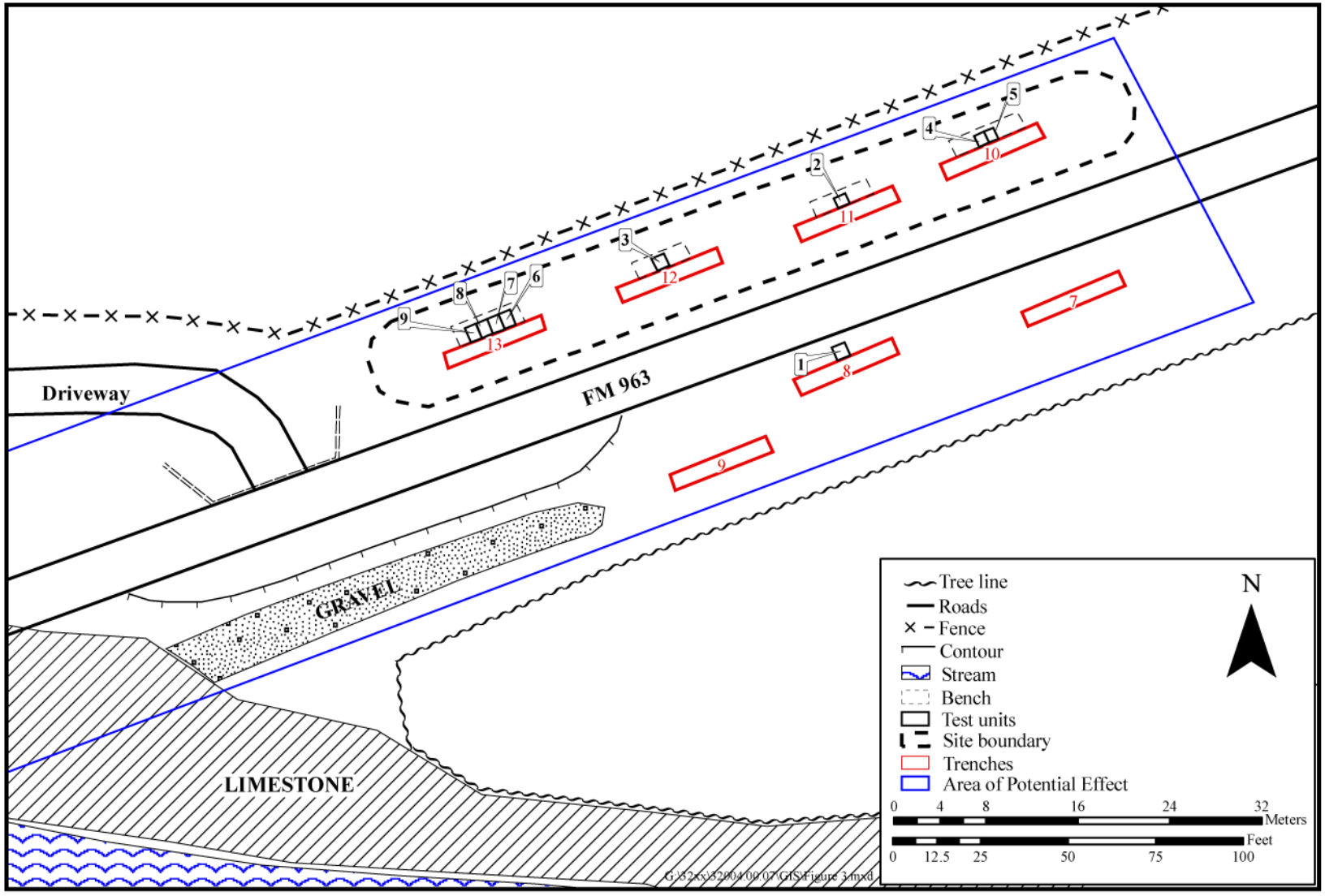

Figure 4. Plan map of site 41BT427 showing the location of Test Units 1-9 and Trenches 7-13.

A site map was created using both GPS and total station data. First the Trimble® ProXRS backpack GPS was used to collect locational data for each of the trenches, the road, the edge of the APE, and various other reference points. During later hand excavation, the total station was used to map the location of 1-x-1-m units adjacent to each trench, the datum points for each unit, and the benches, and these data were overlaid with the GPS data to create an accurate map of site 41BT427.

LABORATORY PROCEDURES

All cultural material recovered during data recovery was returned to the GMI laboratory facilities in Plano, Texas, to be washed, weighed, counted, catalogued, and labeled in compliance with Texas Archeological Research Laboratory (TARL) standards. Context and attribute data for all materials were recorded in a Microsoft ACCESS database on an IBM network system. The main categories of material recovered were animal bone, mussel shell, baked clay, lithics, botanical samples (both flotation samples and opportunistically collected wood charcoal), and fire-cracked rock (Appendix A). All artifactual material was analyzed in the GMI laboratory except the botanical remains, which were sent to an external analyst. The following discussion describes analytical strategies and summarizes the attributes recorded during the analysis of each class of material.

Faunal Remains

Mammal

Every attempt was made to identify bone fragments to the highest taxonomic level possible. Bone specimens not bearing diagnostic features but similar in size and other formal characteristics were placed within the following specific size classes: small terrestrial mammal (STM), medium terrestrial mammal (MTM), large terrestrial mammal (LTM), and very large terrestrial mammal (VLTM). Assessments were also made of the following characteristics: bone element, size/weight of fragment, fusion state, rodent gnawing, burning/butchery evidence, number of identifiable specimens (NISP), and standard metric analyses.

Molluscan Shell

Molluscan specimens were counted using two quantitative units: number of specimens (NSP; [identified and unidentified]) and NISP. Because samples were small, minimum number of individuals (MNI) was not calculated. All attempts were made to identify specimens to taxon and element.

Botanical Remains

Flotation samples were processed at the GMI Plano offices in a Siraf tank flotation system with bottom mesh openings of 0.5 mm (Pearsall 2000:Figure 2.21). Flotation and carbon samples were sent to a private contracting firm, Macrobotanical Analysis (Leslie Bush Ph.D., owner) in February 2010 and the full report is contained within Appendix B.

Flotation samples were sorted according to standard procedures (Pearsall 2000). Each sample was weighed on an Ohaus Scout II 200 x 0.01 g electronic balance before being size-sorted through a stack of graduated geologic mesh. Materials that did not pass through the No. 10 mesh (2-mm square openings) were completely sorted. At 41BT427, only three categories were present that were larger than 2 mm: carbonized macrobotanical remains, identifiable bones, and contamination. The "contamination" (i.e. not studied by the paleobotanist) category includes uncarbonized botanical remains such as rootlets and hackberry seeds, gastropod and bivalve shells, soil clumps, and rocks. All carbonized botanical remains and identifiable bones were counted, weighed, recorded, and labeled. Contamination was weighed, recorded, and labeled only. Materials that fell through the 2-mm mesh ("residue") were examined under a stereoscopic microscope at 7-45 X magnification for carbonized botanical remains. Identifiable material was removed from residue, counted, weighed, recorded, and labeled. Although wood charcoal smaller than 2 mm is not usually removed from residue, so little wood charcoal was present in three of the samples that wood charcoal greater than 0.7 mm was removed from Field Specimen (FS) #60 and FS#61, and wood charcoal greater than 1.4 mm was removed from FS#65. Uncarbonized macrobotanical remains were recorded on a presence/absence basis on laboratory forms.

For each flotation sample, wood charcoal fragments were selected at random for identification. Fragments were snapped to reveal a clean transverse section and examined under a stereoscopic microscope at 28-180 X magnification. When necessary, tangential or radial sections were examined for ray seriation, presence of spiral thickenings, types and sizes of intervessel pitting, and other minute characteristics that can only be seen at the higher magnifications of this range.

Botanical materials were identified to the lowest possible taxonomic level by comparison to materials in the Macrobotanical Analysis comparative collection and through the use of standard reference works (e.g., Core et al. 1979; Davis 1993; Hoadley 1990; Martin and Barkley 1961; Musil 1963; Panshin and de Zeeuw 1980). Plant nomenclature follows that of the PLANTS Database (USDA, NRCS 2010b).

Chipped Stone Tools and Debitage

The major prehistoric artifact class identified in the lithic analysis was lithic debitage. Of the 105 lithic artifacts collected, all but two were various pieces of flaking debris. Two bifaces, one of which is a projectile point base, were recovered during the excavation. No ground, pecked, or battered stone tools were found.

The lithic debitage was classified by technological reduction source (i.e., core flake, biface flake, flake fragment, and shatter). Variables recorded for the lithic debitage included the technological type of debitage, amount of dorsal cortex (if present), heat-treatment or burning, material type, size range, and weight.

Baked Clay

Irregular, gravel-sized masses of hardened clay, many with evidence of oxidation, reduction, or smudging due to fire, occurred in limited amounts in cultural levels in test units. A basic analysis of these masses was performed in the GMI laboratory, where they were separated by size

categories. These categories included the following size classes: smaller than 0.5 in (12.7 mm), 0.5–1 in (12.7–25.4 mm), 1–1.5 in (25.4–38.1 mm), 1.5–2 in (38.1–50.8 mm), and larger than 2 in (50.8 mm). The cumulative weight and total number of baked clay masses within each class and within each context were then recorded in the project ACCESS database.

Fire-Cracked Rock

Fire-cracked rock (FCR) was subjected to a similar basic analysis in the GMI laboratory. Fragments were first sorted based by rock material type (e.g., limestone, quartzite, etc.), and any direct evidence of heating (e.g., fracture pattern, discoloration) noted. Within material types, the FCR was then sorted into size classes: smaller than 0.5 in (12.7 mm), 0.5–1 in (12.7–25.4 mm), 1–1.5 in (25.4–38.1 mm), 1.5–2 in (38.1–50.8 mm), 2–4 in (50.8–101.6 mm), 4–6 in (101.6–152.4 mm), and larger than 6 in (152.4 mm). In the end, the final size class was not included in the analysis because no FCR fragments larger than 6 in (152.4 mm) were found. The cumulative weight and total number of FCR fragments within each class and within each archeological context were then recorded in the project ACCESS database.

CURATION

Upon completion of the analyses and reporting, collected materials will be assessed for the appropriateness for long-term curation.

The remaining collections from the project will be prepared for curation according to the packaging guidelines established by TARL at the University of Texas, Austin. Field and laboratory forms will be on acid-free paper; negatives and photographs will be labeled and placed in acid-free holders; cleaned and labeled artifacts will be placed in appropriate bags and boxes suitable for long-term storage. An inventory of materials submitted to curation will be prepared and a copy will be sent with the collection to TARL for long-term storage; other copies will be sent to TxDOT-ENV.

CHAPTER 5
RESULTS OF THE TEST EXCAVATIONS

EXCAVATIONS

Trench Excavations

Four trenches (Trenches 10–13) were excavated within the boundary of site 41BT427 and nine survey trenches (Trenches 1–9) were excavated along the ROW in the remaining three quadrants of North Rocky Creek and FM 963 (see Figure 3). The nine trenches excavated in the southeast, southwest, and northwest quadrants did not yield cultural material. Trenching within site 41BT427 totaled 29.5 linear meters. All of the trench descriptions are provided below.

Trench Descriptions

Trench 1

Trench 1 was excavated in the southwestern quadrant farthest from the creek. This trench was excavated to a maximum depth of 160 cm bs before encountering limestone bedrock. The total length of Trench 1 was 7 m. Generally, the deposits recorded in this trench indicate a sequence of overbank deposits (Table 2, Figure 5). Gravel lenses in Horizons III and V indicate periods of high-energy flow. No cultural deposits or buried soils were identified.

Trench 2

Trench 2 was also excavated in the southwestern quadrant of the APE. This trench reached a total length of 6 m and was excavated to a maximum depth of 160 cm bs before encountering limestone bedrock and regolith. No cultural materials or buried soil horizons were encountered in this trench. This trench also records a sequence of overbank deposits including high-energy deposition containing gravels in Horizon III (Table 3, Figure 6).

Table 2
Backhoe Trench 1 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–20	Brown (10YR 4/3) medium silty loam with a medium blocky structure, sticky, plastic with no mottles, common roots, and a gradual smooth boundary	Sterile
II	20–60	Brown (10YR 4/3–4/4) medium silty clay loam, moderately common 1-cm pea gravels, moderately friable, friable, plastic with no mottles, common fine roots, clear smooth boundary	Sterile
III	60–72	Yellowish brown (10YR 5/4) gravel lens with coarse sands, hard, friable, non-sticky, non-plastic, no roots, and a clear smooth boundary	Sterile
IV	72–90	Dark yellowish brown (10YR 4/4) silty clay, compact, sticky, plastic, few roots, with common $CaCO_3$ filaments, with a clear smooth boundary	Sterile
V	90–110	Yellowish brown (10YR 5/4) gravel lens with coarse sands, hard, friable, non-sticky, non-plastic, no roots, and a clear smooth boundary	Sterile
VI	110–125	Yellowish brown (10YR 5/4) silty clay with common $CaCO_3$ filaments, gradual diffuse boundary	Sterile
VII	125–150	Yellowish brown (10YR 5/4) silty clay loam, non-sticky, plastic, clear abrupt boundary	Sterile
VIII	150–160	Sand and gravel up to 3 cm	Sterile
IX	160+	Limestone bedrock	Sterile

Trench 3

Trench 3 was also excavated in the southwestern quadrant nearest North Rocky Creek. This trench was 7 m in length and was excavated to a maximum depth of 180 cm bs. At 176 cm bs, sand and gravel deposits were encountered that began caving in and undercutting the trench walls; excavation was halted so that trench recording could proceed safely. No cultural material was identified, and no buried soil horizons are present in this location. Stream deposits dominate the profile as would be expected for the floodplain of the North Rocky Creek (Table 4, Figure 7).

Trench 4

Trench 4 was excavated in the northwestern quadrant of the APE. This trench was 7.5 m long and was excavated to a maximum depth of 167 cm bs before encountering gravel overlying limestone bedrock. The upper two horizons visible in the trench wall consisted of fill, likely resulting from road construction (Table 5, Figure 8). No cultural material was identified and no buried soil was detected.

Figure 5. Trench 1 north wall profile.

Table 3
Backhoe Trench 2 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–30	Very dark gray (10YR 3/1) silty clay loam with a medium blocky structure, sticky, plastic with no mottles, common roots, and a gradual smooth boundary	Sterile
II	30–60	Dark grayish brown (10YR 4/2) silty loam, no structure, moderately common <1-cm pea gravels, moderately friable, friable, common fine roots, clear smooth boundary	Sterile
III	60–90	Brown (10YR 4/3) silty loam with gravels, gradual fining upward, granular, friable, non-sticky, non-plastic, no roots, gravel lens at base with discrete boundary	Sterile
IV	90–150	Brown (10YR 5/3–4/3) silty loam, granular, friable, no structure, common $CaCO_3$ filaments, with a clear smooth boundary	Sterile
V	150–160	Coarse limestone sand and gravel above regolith	Sterile

Figure 6. Trench 2 north wall profile.

Table 4
Backhoe Trench 3 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–20	Very dark grayish brown (10YR 3/2) mixed fill including gravel and clay clasts, common roots, clear abrupt boundary	Sterile
II	20–30	Dark grayish brown (10YR 4/2) fill with some gravels, common fine roots, clear smooth boundary	Sterile
III	30–57	Dark grayish brown (10YR 4/2) coarse mixed sand and silt with $CaCO_3$ in interstices, no structure, some very small gravels, non-plastic, few roots, and a clear smooth boundary	Sterile
IV	57–105	Brown (10YR 4/3) silty loam, compact, non-plastic, few roots, no structure, with a diffuse boundary	Sterile
V	105–121	Yellowish brown (10YR 5/4) coarse sand, friable, non-sticky, non-plastic, no roots, and a clear smooth boundary	Sterile
VI	121–145	Gray (10YR 5/1) silty clay with common $CaCO_3$ filaments and redox staining, clear boundary	Sterile
VII	145–150	Light yellowish brown (10YR 6/4) sand, non-sticky, non-plastic, clear abrupt boundary	Sterile
VIII	150–165	Dark gray (10YR 4/1) clay, plastic, abrupt boundary	Sterile
IX	165–170	Light yellowish brown (10YR 6/4) sand, non-sticky, non-plastic, clear abrupt boundary	Sterile

Table 4 (cont'd)

Horizon	Depth (cm bs)	Soil Description	Contents
X	170–176	Dark grayish brown (10YR 4/2) clay, plastic, abrupt boundary	Sterile
XI	176+	Light gray to light brownish gray (10YR 6/2–7/2) sand and gravel, friable, non-sticky, non-plastic, boundary not observed	Sterile

Figure 7. Trench 3 north wall profile.

Trench 5

Trench 5 was also excavated in the northwestern quadrant, east of Trench 4. It was 7 m in length and reached a maximum depth of 175 cm bs. This trench revealed a sequence of alluvial deposits resulting from flood episodes. Two clear fining upward sequences were apparent in Horizons VI and VII (Table 6, Figure 9). No indication of a buried soil or other stable surface was apparent, and no cultural materials were identified.

Trench 6

Trench 6 was excavated in the northwestern quadrant of the APE. This trench was 5 m long and reached a maximum depth of 195 cm bs. In general, the sediments observed in this trench consisted entirely of overbank deposits with a layer of introduced gravely fill at the surface (Table 7, Figure 10). No buried soil horizons were observed, and no cultural materials were identified.

Table 5
Backhoe Trench 4 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–30	Brown (10YR 4/3) fill with loose gravels, common roots, clear abrupt boundary	Sterile
II	30–46	Brown to dark yellowish brown (10YR 4/3–4/4) fill with thick gravels, common fine, clear smooth boundary	Sterile
III	46–125	Brown (10YR 4/3) silty loam, no structure, non-plastic, few roots, increase in $CaCO_3$ near 85 cm, clear smooth boundary	Sterile
IV	125–145	Brown (10YR 4/3) gravel lens, heavy $CaCO_3$ filaments, 1–5-cm cobbles, friable, no structure, a clear distinct boundary	Sterile
V	145–167	Brown (10YR 4/3–4/4) silty clay loam, sticky, plastic, no roots, and a clear smooth boundary	Sterile
VI	167+	Gravel layer on top of bedrock, did not reach boundary, scraped with backhoe teeth	Sterile

Figure 8. Trench 4 north wall profile.

Table 6
Backhoe Trench 5 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–30	Dark grayish brown (10YR 4/2–4/3) mixed fill including gravel and clay clasts, common roots, clear abrupt boundary	Sterile
II	30–42	Dark grayish brown (10YR 4/2–4/3) fill, silty with laminated runoff deposits, clear smooth boundary	Sterile
III	42–50	Yellowish brown (10YR 5/4) silty loam, no structure, non-plastic, few roots, and a clear smooth boundary	Sterile
IV	50–62	Brown (10YR 4/3) gravel lens, abrupt boundary	Sterile
V	62–95	Brown (10YR 4/3) silty loam, compact, abundant $CaCO_3$, friable, non-sticky, non-plastic, no roots, and a clear smooth boundary	Sterile
VI	95–115	Brown (10YR 5/3) coarse sand, fining upward through horizon, friable, no structure, clear smooth boundary	Sterile
VII	115–122	Brown (10YR 5/3) coarse sand, fining upward through horizon, friable, no structure, clear smooth boundary	Sterile
VIII	122–145	Brown (10YR 4/3) sandy silt, no structure, some $CaCO_3$, abrupt boundary	Sterile
IX	145–160	Brown (10YR 5/3) gravel lens with sand, clear abrupt boundary	Sterile
X	160–175+	Brown (10YR 4/3) silty sand, non-sticky, non-plastic, boundary not observed	Sterile

Figure 9. Trench 5 north wall profile.

Table 7
Backhoe Trench 6 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–38	Brown (10YR 4/3) mixed fill including gravel and clay clasts, common roots, clear abrupt boundary	Sterile
II	38–57	Brown (10YR 5/3) sand, common fine roots, clear smooth boundary	Sterile
III	57–72	Dark grayish brown (10YR 4/2) silty loam, weak structure, non-plastic, few roots, clear smooth boundary	Sterile
IV	72–85	Brown (10YR 5/3) sand, fining upward, friable, non-plastic, few roots, no structure, clear smooth boundary	Sterile
V	85–100	Dark grayish brown (10YR 4/2) silty loam, weak structure, non-plastic, few roots, clear smooth boundary	Sterile
VI	100–125	Brown (10YR 5/3) sand, fining upward, friable, non-plastic, no structure, clear smooth boundary	Sterile
VII	125–155	Dark grayish brown (10YR 4/2) silty loam, weak structure, non-plastic, some $CaCO_3$, clear smooth boundary	Sterile
VIII	155–165	Brown (10YR 5/3) sand, fining upward, friable, non-plastic, no structure, clear smooth boundary	Sterile
IX	165–195	Dark yellowish brown (10YR 4/4–4/6) gravels, coarse sand, pea gravel, loose, friable, charcoal flecking, boundary not observed	Sterile

Figure 10. Trench 6 north wall profile.

Trench 7

Trench 7 was excavated in the southeastern quadrant, farthest from the creek. This trench had a total length of 7 m and reached a maximum depth of 195 cm bs. Bedrock was never encountered, and no cultural materials were observed (Table 8, Figure 11).

Table 8
Backhoe Trench 7 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–20	Yellowish brown (10YR 5/4) fill with mixed gravels, laminated clays and sands, common roots, clear abrupt boundary	Sterile
II	20–46	Very dark grayish brown (10YR 3/2) silty clay loam soil, abundant roots, some loading apparent, gradual boundary	Sterile
III	46–90	Dark brown (10YR 3/3) grades to dark yellowish brown (10YR 4/4) upper is a silty loam that grades down into sandy silty loam, granular, non-plastic, roots, clear smooth boundary	Sterile
IV	90–140	Dark grayish brown (10YR 4/2) silty loam, compact, very weak structure, abundant $CaCO_3$ filaments, diffuse boundary	Sterile
V	140–195	Brown (10YR 5/3–4/3) sandy silty loam, granular, non-sticky, friable, no roots, did not observe boundary	Sterile

Figure 11. Trench 7 north wall profile.

Trench 8

Trench 8 was excavated in the southeastern quadrant of the APE. This trench reached a total length of 7 m and a maximum depth of 190 cm bs. Bedrock was not encountered. A concentration of charcoal and possible burned rock was observed at approximately 185 cm bs (Table 9, Figure 12). To determine if these materials were cultural in origin, one 1-x-1-m test unit (Test Unit 1) was placed adjacent to the trench.

Table 9
Backhoe Trench 8 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–42	Brown (10YR 4/3) loaded fill with mixed gravels and clay clasts, clear abrupt boundary	Sterile
II	42–55	Brown (10YR 5/3) sand, likely fill, discrete boundary	Sterile
III	55–76	Dark brown (10YR 3/3) silty clay, appears to be the A horizon buried by fill, common roots, some $CaCO_3$, diffuse boundary	Sterile
IV	76–88	Dark grayish brown (10YR 4/4) sandy silty loam, compact, very weak structure, roots, $CaCO_3$ filaments, clear gradual boundary	Sterile
V	88–164	Very dark grayish brown (10YR 3/2) silty loam, roots, granular, non-sticky, abundant $CaCO_3$ filaments, gradual smooth boundary	Sterile
VI	164+	Dark grayish brown (10YR 4/2) sandy silt, scattered charcoal flecks, boundary not observed, gravels at base	Smoothed flake

Trench 9

Trench 9 was excavated in the southeastern quadrant nearest the creek. This trench reached a maximum depth of 175 cm bs and a total length of 5.5 m. The upper 80 cm of this trench consisted of fill. Near the bottom of the fill deposits, large cut limestone blocks and concrete slabs retaining rebar were exposed (Table 10, Figure 13). It is likely that this material is associated with previous bridge replacements. Below this fill gravel, channel deposits were encountered.

Trench 10

Trench 10 was excavated in the northeastern quadrant of the APE at site 41BT427. This trench was excavated to a maximum depth of 220 cm bs and was 7.5 m in length. A cluster of three burned rocks was exposed in the north wall at approximately 80–85 cm bs (Table 11; Figure 14). One additional burned rock was located a meter east of the cluster at 85–90 cm bs. Charcoal flecks were scattered between 70–210 cm bs. No burned rock was apparent below 1 m, and there was no evidence of the lower component identified when the site was originally recorded. Test Units 4 and 5 were excavated adjacent to Trench 10.

Figure 12. Trench 8 north wall profile.

Table 10
Backhoe Trench 9 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–80	Mixed gravel fill containing limestone blocks and concrete slabs with rebar, clear abrupt boundary	Sterile
II	80–175	Gravel and coarse sand channel deposits	Sterile

Trench 11

Trench 11 was excavated in the northeastern quadrant of the APE, at site 41BT427. This trench was excavated to a maximum depth of 220 cm bs and was 7.5 m in length. Charcoal was observed throughout the profile between 70 and 210 cm bs. One bivalve shell and a burned rock located in Horizon III, at 90 cm bs in the north wall, were the impetus for the placement of Test Unit 2 along this trench (Table 12, Figure 15). A safety bench was excavated on the northern side of the trench and overburden was removed to approximately 70 cm bs.

Figure 13. Trench 9 north wall profile.

Trench 12

Trench 12 was excavated in the northeastern quadrant of the APE at site 41BT427. This trench was excavated to a maximum depth of 217 cm bs and a total length of 7 m. No cultural material or burned rock was observed in either profile of Trench 12, though charcoal was dispersed throughout much of the trench below 75 cm (Table 13, Figure 16). Nevertheless, Test Unit 3 was placed adjacent to Trench 12.

Trench 13

Trench 13 was excavated in the northeastern quadrant of the APE at site 41BT427. This trench reached a maximum depth of 175 cm bs and a total length of 7.5 m. One large tabular piece of limestone was removed from this trench during mechanical excavation but was not observed until it was dumped into the backdirt pile (Figure 17). This limestone slab might possibly be ground

Table 11
Backhoe Trench 10 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–27	Black (10YR 2/1) silty clay with abundant vegetation and common roots, diffuse boundary	Sterile
II	27–49	Very dark grayish brown (10YR 3/2) silty clay, common fine roots, gradual diffuse boundary	Sterile
III	49–62	Dark grayish brown (10YR 4/2) sandy silty clay, weak structure, non-plastic, few roots, and a clear smooth boundary	Sterile
IV	62–111	Very dark grayish brown (10YR 3/2) granular silty loam, compact, non-plastic, few roots, charcoal flecking, weak structure, with a diffuse boundary	Burned rock, bone
V	111–118	Dark grayish brown (10YR 4/2) silty clay, charcoal flecking, sticky, plastic, no roots, common $CaCO_3$ filaments, and a clear smooth boundary	Sterile
VI	118–163	Very dark grayish brown (10YR 3/2) silty loam, weak structure, charcoal flecking, $CaCO_3$ filaments, clear discrete boundary	Sterile
VII	163–220	Brown (10YR 4/3) silty sand, charcoal flecking, non-sticky, non-plastic, grading down to coarser sands and gravels	Sterile

Figure 14. Burned rock cluster in Trench 10 north wall profile.

Table 12
Backhoe Trench 11 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–20	Very dark grayish brown (10YR 3/2) silty clay with some small pebbles dispersed, somewhat mixed appearance, common roots, clear abrupt boundary	Sterile
II	20–77	Brown (10YR 4/3) sandy silty loam, small charcoal flecks throughout, common fine roots, non-plastic, clear smooth boundary	Sterile
III	77–99	Dark grayish brown (10YR 4/2) sandy silty loam, very few tiny charcoal flecks, non-plastic, diffuse boundary	Mussel shell, burned rock
IV	99–105	Brown (10YR 4/3) silty sandy loam, friable, non-plastic, few roots, weak structure, charcoal flecking, clear smooth boundary	Sterile
V	105–120	Brown (10YR 4/3) silty loam, non-plastic, no roots, charcoal flecking, clear smooth boundary	Sterile
VI	120–133	Brown (10YR 4/3) silty clay with common $CaCO_3$ filaments and redox staining, clear boundary	Sterile
VII	133–143	Brown (10YR 4/3) silty loam, non-plastic, no roots, charcoal flecking, clear smooth boundary	Sterile
VIII	143–153	Brown (10YR 4/3) silty sandy loam, friable, non-plastic, few roots, weak structure, charcoal flecking, clear smooth boundary	Sterile
IX	153–167	Brown (10YR 4/3) silty loam, non-plastic, no roots, charcoal flecking, clear smooth boundary	Sterile
X	167–175	Brown (10YR 4/3) silty sandy loam, friable, non-plastic, few roots, weak structure, charcoal flecking, clear smooth boundary	Sterile
XI	175–207	Brown (10YR 4/3) sandy silty clay, charcoal flecks, non-sticky, non-plastic, gradual boundary	Sterile
XII	207–228	Yellowish brown (10YR 5/4) sand, weak structure, friable, charcoal flecking, discrete boundary, lens of darker sediment with charcoal	Sterile
XIII	228+	Dark yellowish brown (10YR 4/4–4/6) gravels, coarse sand, pea gravel, loose, friable, charcoal flecking, boundary not observed	Sterile

stone, though no striations were observed upon careful inspection and it was not clearly ground. Two large burned rocks were observed during trench excavation at the eastern end of the trench in the north wall. These rocks were located at 90 cm bs in Horizon III (Table 14, Figure 18). Four rocks that appeared to be burned were located at 185 cm bs. Test Units 6–9 were excavated adjacent to Trench 13.

Figure 15. Trench 11 north wall profile.

Table 13
Backhoe Trench 12 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–29	Very dark grayish brown (10YR 3/2) silty clay, blocky structure, common roots, clear abrupt boundary	Sterile
II	29–95	Brown (10YR 4/3) sandy silty loam, compact, $CaCO_3$ filaments, charcoal flecking, gradual boundary	Sterile
III	95–150	Brown (10YR 4/3) sandy silty loam, granular, non-plastic, $CaCO_3$ filaments, charcoal flecking, clear smooth boundary	Sterile
IV	150–195	Brown (10YR 4/2-4/3) silty loam, compact, very weak structure, abundant $CaCO_3$ filaments, charcoal flecking, diffuse boundary	Sterile
V	195–220+	Brown (10YR 4/3) gravel from pea-size to 15 cm in diameter, did not observe boundary	Sterile

Figure 16. Trench 12 north wall profile.

Test Unit Excavations

National Register eligibility testing at 41BT427 entailed the excavation of eight 1-x-1-m test units within the boundary of the site (Test Units 2–9) and one test unit outside the known southern site boundary (Test Unit 1). Each test unit was excavated adjacent to one of the four trenches excavated within the site boundaries (see Figure 4). The additional test unit (Test Unit 1) was placed outside the site across FM 963 adjacent to Trench 8 to test what appeared to be a concentration of charcoal and a burned rock in the trench profile. Overall, excavations from the testing yielded 105 chipped stone artifacts including one biface fragment and one projectile point fragment, 59 pieces of bone, and 21 pieces of mussel shell (see Appendix A). As charcoal was observed throughout the profile of each of these units, samples were collected within levels with associated artifacts as well as randomly in levels with low artifact recovery. In addition, 82.2 g of burned clay or burned earth were collected for inspection in the laboratory for impressions.

Figure 17. Tabular piece of limestone recovered from Trench 13.

Table 14
Backhoe Trench 13 North Wall Profile

Horizon	Depth (cm bs)	Soil Description	Contents
I	0–27	Very dark grayish brown (10YR 3/2) silty clay loam, common roots, clear abrupt boundary	Sterile
II	27–49	Very dark grayish brown (10YR 3/2) sandy silty clay, $CaCO_3$ filaments, clear smooth boundary	Sterile
III	49–93	Very dark gray (10YR 3/1) silty clay, thick common $CaCO_3$ filaments, weak structure, plastic, few roots, diffuse boundary	Burned rock
IV	93–120	Very dark grayish brown (10YR 3/2) silty loam, abundant charcoal flecking, weak structure, $CaCO_3$ filaments, clear smooth boundary	Sterile
V	120–150	Brown (10YR 4/2–4/3) sandy silty loam, $CaCO_3$, non-sticky, non-plastic, no roots, discrete smooth boundary	Sterile
VI	150–175	Dark grayish brown (10YR 4/2) silt, charcoal flecking, weak structure, diffuse boundary	Sterile
VII	175–195	Dark gray to dark grayish brown (10YR 4/1–4/2) clayey silt, plastic, moderately sticky, discrete boundary	Possible burned rock
VIII	195–215	Brown (10YR 5/3) clay, sand, and gravel. Gravels range from pea-size to 10 cm in diameter, very wet, did not observe boundary	Sterile

Figure 18. Trench 13 north wall profile.

Test Unit 1 (98.83–98.38 m Elevation [174–219 cm bs])

Test Unit 1 was excavated in the southeast quadrant adjacent to Trench 8, outside the boundaries of site 41BT427. This test unit and trench served primarily to prospect for cultural materials on the opposite side of the road from the originally defined boundary for site 41BT427. Test Unit 1 was excavated to test a charcoal concentration observed at approximately 185 cm bs (elevation 98.72 m), the recorded depth for the lower component originally recorded at site 41BT427. To determine if this material was cultural in origin, 1-x-1-m Test Unit 1 was placed adjacent to the trench. Several small fragments of possibly burned rock and one smoothed chipped stone flake were encountered at 200 cm bs (elevation 98.57 m) in a gravel lens (Table 15). It is unlikely that this material represents in situ cultural activity.

Table 15
All Artifact Types Identified from All Proveniences at 41BT427

Test Unit	Level	Depth (cm bs)	Elevation (m)	Proj. Point	Biface	Chipped Stone Debitage	Shell	Charcoal Sample/g	Burned Clay (g)	Bone	Burned Rock/kg
1	1	174–184	98.83–98.73	-	-	-	-	100/31.1g	-	-	0
1	4	204–219	98.53–98.38	-	-	1	-	-	-	-	-
2	4	90–100	99.37–99.27	-	-	-	-	1 5/2.6g	-	-	.1 0
2	5	100–110	99.27–99.17	-	-	1	-	1 7/3.4g	-	-	.01 0
2	7	120–130	99.07–98.97	-	-	-	-	-			.3 0
2	16	210–220	98.17–98.07	-	-	-	- 9	-	-	-	.2 0
3	1	55–65	99.55–99.45	-	-	1 0	-	-	-	-	.1 4/10.5
3	2	65–75	99.45–99.35	-	-	2	-	-	-	-	.1 7/34.1
3	3	75–85	99.35–99.25	-	-	-	-	1 20/1.9g	-	-	.1 4/17.9
3	4	85–95	99.25–99.15	-	-	-	-	1 3/04g	-	-	1.1 1/.6
3	5	95–105	99.15–99.05	-	-	2 1	1	1 2/.3g	-	-	.2 1/194.9
3	6	105–115	99.05–98.95	-	-	-	-	-	-	-	.1 2/30.4
3	7	115–125	98.95–98.85	-	-	-	-	1 19/2g	-	1	-
3	8	125–135	98.85–98.75	-	-	4	-	1 152.1g	-	-	-
3	9	135–145	98.75–98.65	-	-	5	-	1/.05	-	-	-
3	10	145–155	98.65–98.55	-	-	-	-	- 1/.05			.1 1/1.2
3	12	165–175	98.45–98.35	-	-	-	-	1/.4			-
3	13	175–185	98.35–98.25	-	-	-	-	1 9/.9g			- 1/15.0
3	14	185–195	98.25–98.15	-	-	-	-	-			- 5/2.1
4	1	75–85	99.36–99.26	-	1	-	-	-	-	-	.1 9/6.3
4	2	85–95	99.26–99.16	-	-	2 16	-	1 7/.015g	-	3 4	1.42 25/1.0
4	2 (soil)	85–90	flotation	-	-	34 4	-	-	-	-	- 9/21.5
4	4	105–115	99.06–98.96	-	-	-	-	1 0	-	-	.1 1/.2
4	5	115–125	98.96–98.86	-	-	-	-	1/4g	-	-	-
4	6	125–135	98.86–98.76	-	-	1	-	1 2/.05	-	-	.1 0
4	7	135–145	98.76–98.66	-	-	-	-	-	-	-	.1 1/.7
4	10	165–175	98.46–98.36	-	-	-	-	-	-		.1 1/2.9

Table 15 (cont'd)

Test Unit	Level	Depth (cm bs)	Elevation (m)	Proj. Point	Biface	Chipped Stone Debitage	Shell	Charcoal Sample/g	Burned Clay (g)	Bone	Burned Rock/kg
4	11	175–185	98.36–98.26	-	-	-	-	1 2/.4g	-	-	-
5	1	75–85	99.36–99.26	-	-	-	-	-	-	- 3	.1 1/48.9
5	2	85–95	99.26–99.16	1	-	1	1	- 3/.01g	2.5 6.5g	- 2	.3 33/227.0
5	3	95–105	99.16–99.06	-	-	-	-	-	-	-	.3 16/457.1
5	4	105–115	99.06–98.96	-	-	-	-	1 20/35.1g	-	-	.01 1/1.1
5	6	125–135	99.86–98.76	-	-	-	-	-	-	-	.01 1/.3
6	1	79–90	99.49–99.38	-	-	1	-	-	-	-	-
6	3	100–110	99.28–99.18	-	-	3	-	1 50/6g	-	3	.1 0
6	4	110–120	99.18–99.08	-	-	28 26	-	1 90/33.7g	5.0	21 28	3.1 12/40.9
6	4 (soil)	???110–120	flotation	-	-	29 22	-	- 50/.375g	8.0	-	- 17/5.3
6	5	120–130	99.08–98.98	-		-	-	1 20/16.4g	-	-	1.1 0
6	6	130–140	98.98–98.88	-	-	1	-	-	-	-	1.5 0
6	7	140–150	98.88–98.78	-	-	-	-	-	-	-	.3 0
6	9	160–170	98.68–98.58	-	-	1	-	-	-	-	.5 0
6	11	180–190	98.48–98.38	-	-	-	-	1 20/11.3	-	-	.7 0
6	12	190–200	98.38–98.28	-	-	-	-	-	-	3	.1 0
6	13	200–210	98.28–98.18	-	-	-	-	-	-	-	.01 0
7	2	90–100	99.38–99.28	-	-	-	-	-	-	-	.1
7	3 (soil)	100–110	99.28–99.18	-	-	- 1	- 9	- 16/.01	- .2	- 1	.4 4/6
7	4	110–120	99.18–99.08	-	-	2	-	50/10.5g	1.1g	-	-
7	4 (soil)	110–120	99.18–99.08	-	-	9 0	-	1 33/.095	1.5 .2	- 4	17 14/2
7	5	120–130	99.08–98.98	-	-	-	-	1 15/4.4	-	-	.1 0
7	7	140–150	98.88–98.78	-	-	1	-	1 26/7	10.5 0	-	.5 12/9.7
7	8	150–160	98.78–98.68	-	-	1	-	1 28/18.9	-	-	1 0
8	3	95–105	99.33–99.23	-	-	-	-	-	.1 0	-	.01 2/12.4
8	4	105–115	99.23–99.13	-	-	-	-	1 50/5.2	.3 .2	-	0.1 23/521.1
8	5	115–125	99.13–99.03	-	-	-	-	1 2/.2	30.5	1	.1 35/141.1
8	6	125–135	98.93–98.83	-	-	1	-	-	1.8 .7	-	.1 3/.9

Table 15 (cont'd)

Test Unit	Level	Depth (cm bs)	Elevation (m)	Proj. Point	Biface	Chipped Stone Debitage	Shell	Charcoal Sample/g	Burned Clay (g)	Bone	Burned Rock/kg
8	7	135–145	98.83–98.73	-	-	2	-	1 3/.3	3.6 0	1	.1 21/97.0
8	9	155–165	98.63–98.53	-	-	-	-	1 1/.2	-	-	.1 1/1.36
9	3	95–105	99.33–99.23	-	-	-	-	1 3/.1	-	-	-
9	4	105–115	99.23–99.13	-	-	3	1	1 3/.3	-	1	.2 14/363.3
9	5	115–125	99.13–99.03	-	-	-	-	1 0	11.2 .7	-	.01 21/19.2
9	5 (soil)	115–125	99.13–99.03								11/1.9
9	6	125–135	98.93–98.83	-	-	1	-	1 3/3.8	7.7 2.5	-	.15 25/89.5
	7	135–145	98.83–98.73	-	-	2 0	-	-	-	-	-
		TOTALS		1	1	209	21		87.2	68	339/2399. 89

Test Unit 2 (99.69–97.87 m Elevation [58–240 cm bs])

Test Unit 2 was excavated at 41BT427 adjacent to Trench 11 to test an area along the north trench profile that exposed a bivalve shell as well as a burned rock. Charcoal flecking was observed in the trench wall and during hand excavation between 70 cm to 210 cm bs (99.57–98.17 m) with a concentration near 210 cm bs (98.17 m), just above a sand layer. Only one chipped stone flake was collected during excavation from Level 5 (99.27–99.17 m) (see Table 15).

Test Unit 3 (99.55–98.15 m Elevation [55–195 cm bs])

Test Unit 3 was excavated adjacent to Trench 12 at site 41BT427. Although no cultural material was observed in the profiles of Trench 12, this area required testing to determine the presence of cultural material that escaped notice or was simply not exposed in profile. During excavation charcoal was observed throughout the profile. Large pieces were periodically collected as samples, though unassociated with cultural material. A total of 15 chipped stone flakes was recovered in this unit; three from Levels 1 and 2 (99.55–99.35 m), three from Level 5 (99.15–99.05 m), and nine from Levels 8 and 9 (98.85–98.65 m) (see Table 15). One fragment of mussel shell was collected from Level 5. One fragment of bone was collected from Level 7 (98.95–98.85 m).

Test Unit 4 (99.36–98.26 m Elevation [75–185 cm bs])

Test Unit 4 at 41BT427 was excavated adjacent to Trench 10 over a cluster of three burned rocks observed in the north profile at 80-85 cm bs (99.31–99.26 m). Feature 1 was identified in this unit and consisted of a small cluster of burned, friable limestone, chipped stone flakes, and a

small amount of animal bone in Test Unit 4 along Trench 10 between 85 and 90 cm bs (99.26–99.21 m) (Figure 19). Although one basal fragment of a biface was collected from Level 1, the majority of cultural material was recovered from Level 2 (99.26–99.16 m) (Figure 20). This included 56 chipped stone flakes (34 recovered from flotation) and seven bone fragments (see Table 15).

Figure 19. Feature 1 rock cluster in Test Unit 4, photographer is facing north-northwest.

The biface fragment was made from a gray, fine-grained chert with pale inclusions similar to common Edwards chert varieties. The extant piece has a 27.5-mm maximum width, a 25-mm maximum length, and a 6-mm maximum thickness.

Even though charcoal flecking was observed in the level containing Feature 1, only one larger piece of charcoal could be collected. This charcoal was submitted for radiocarbon dating (Beta 236942) and produced a 2 sigma calibrated result of A.D. 650 to 780 (Cal BP 1300 to 1170) (Appendix C). In addition, very small flecks of burned earth were observed throughout the soil matrix.

Below the Feature 1 occupation zone, materials were scattered throughout the profile. One chipped stone flake was recovered from Level 6 (98.86–98.76 m) (Figure 21; see Table 15).

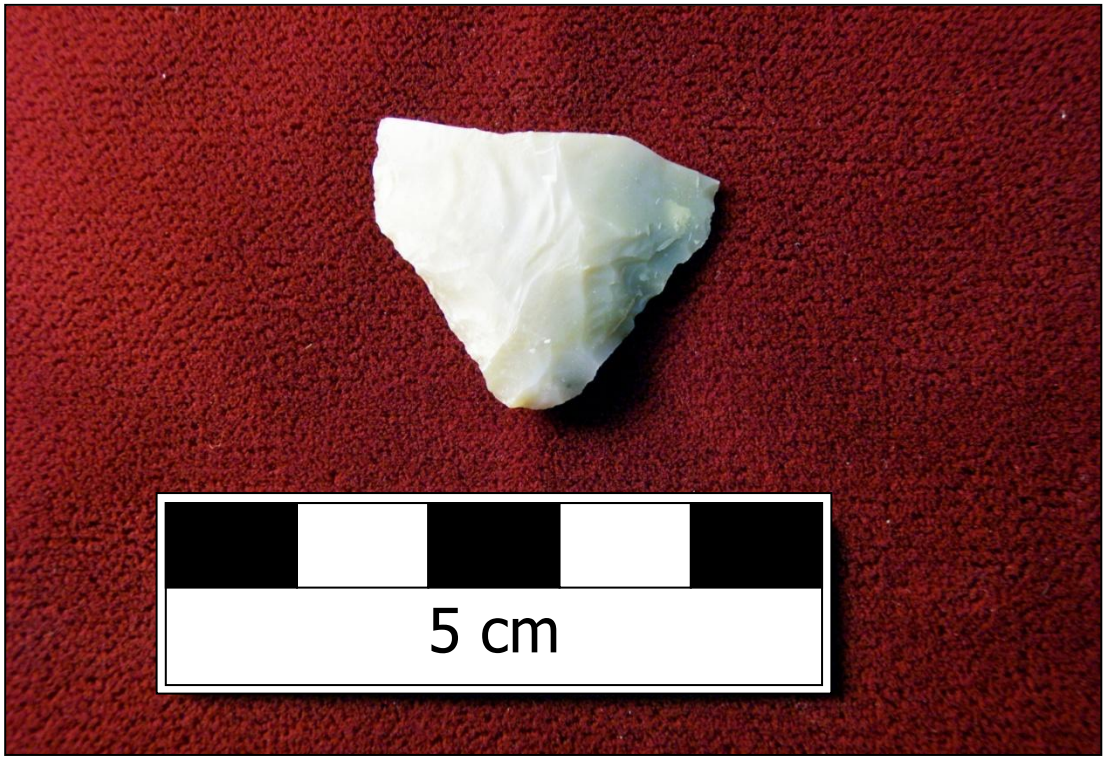

Figure 20. Basal fragment of a biface recovered in Test Unit 4, Level 1 (99.36–99.26 m).

Test Unit 5 (99.36–98.66 m Elevation [75–145 cm bs])

Test Unit 5 at 41BT427 was excavated adjacent to Trench 10 and on the east side of Test Unit 4. This unit was opened up to test the apparent concentration in Levels 1 and 2 (99.36–99.16 m) that was observed in Test Unit 4 and to test the location of an additional burned rock observed in the trench profile. The density of artifacts recovered from the levels adjacent to Feature 1 was much lower than observed in Test Unit 4. One chipped stone flake and one diagnostic tool were recovered from Level 2 (99.26–99.16 m) in addition to one piece of shell and 2.5 g of burned clay (see Table 15).

The only diagnostic artifact recovered during this investigation was found in this unit. The basal portion of a medium-sized dart point was recovered from 88 cm bs (Level 2) in Test Unit 5 (Figure 22). The projectile point base is broken along a lateral edge and across the blade. This point is barbed with a bifurcated base. The fracture removed one barb. The stem is straight and the base is thinned but does not appear to be ground. This tool was made from a gray to tan chert with inclusions that appear common in many varieties of Edwards chert. The stem width is 18 mm, total extant length is 30 mm, and stem length is 13 mm; projected maximum width would be 31 mm if this point was roughly symmetrical prior to breakage.

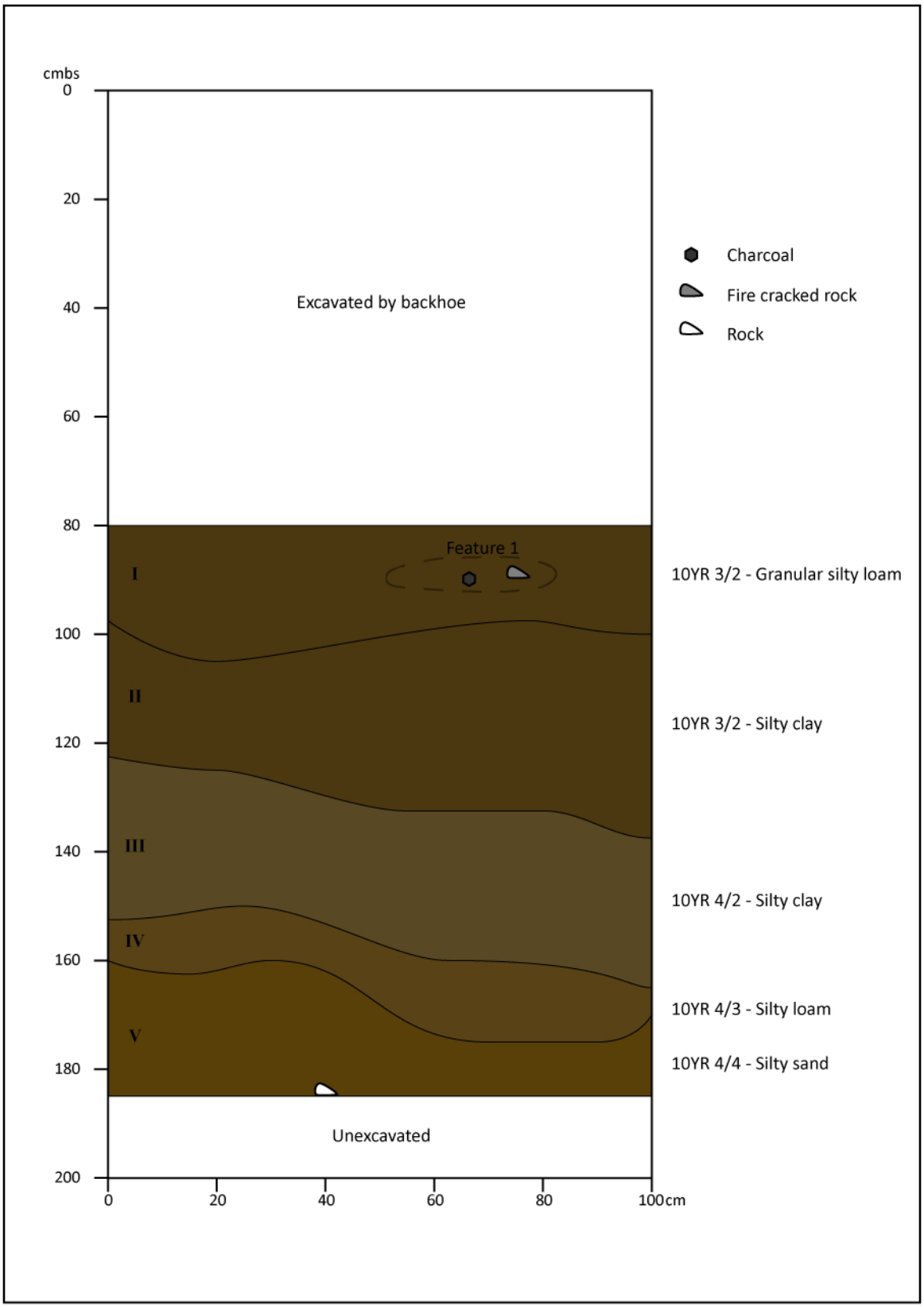

Figure 21. Profile of the northeast wall of Trench 10, site 41BT427.

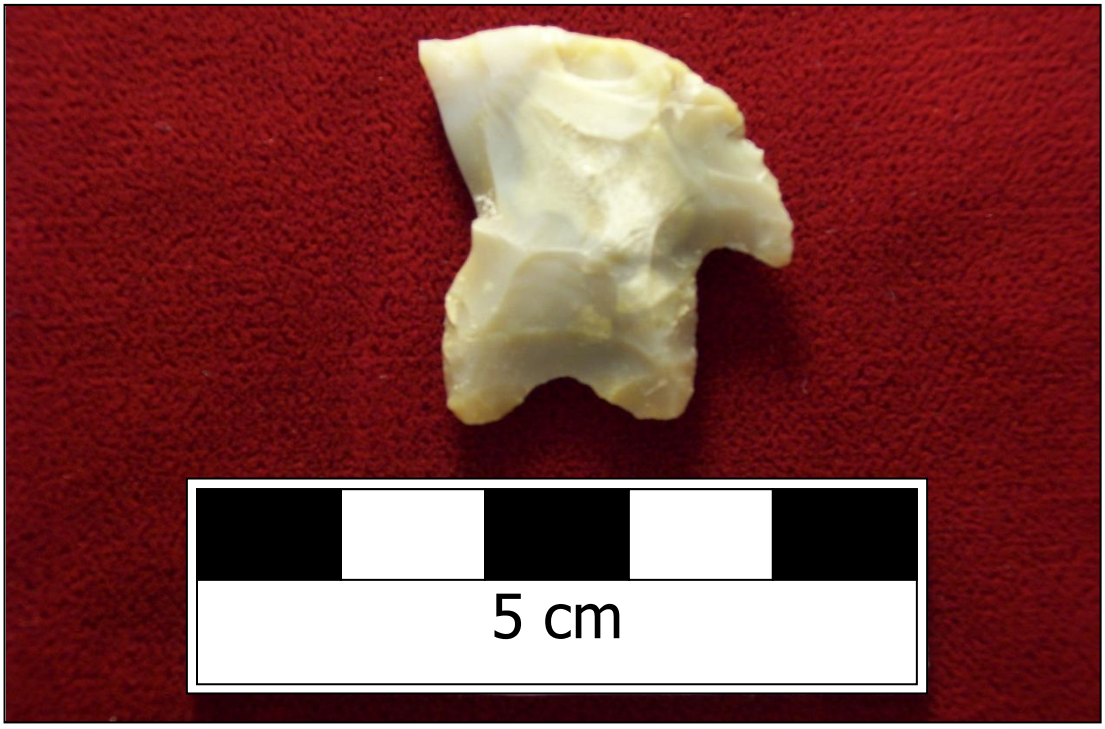

Figure 22. Dart point fragment recovered from Test Unit 5, Level 2 (99.26–99.16 m).

Test Unit 6 (99.49–98.18 m Elevation [76–210 cm bs])

Test Unit 6 was excavated adjacent to Trench 13 to test two large burned rocks that were exposed in the north trench wall at approximately 90 cm bs (99.38 m). Again, one clear occupation zone was recorded. A cluster of burned and unburned rock was recorded and photographed in Level 4 (Figure 23). A total of 108 pieces of chipped stone debitage were collected from Levels 3 and 4 (99.28–99.08 m), with 105 coming from Level 4 (99.18–99.08 m) alone (51 were from flotation samples). In addition, 34 g of burned clay were collected from Level 4, 49 fragments of animal bone were recovered from Level 4 and 3 fragments from Level 3 (99.28–99.18 m) (see Table 15). Charcoal from Level 4 was collected and submitted for radiocarbon dating (Beta 236943) and resulted in a 2 sigma calibrated age of A.D. 660 to 780 (Cal BP 1290 to 1160) (Appendix C).

Below this occupation zone, artifact recovery was sparse (Figure 24). One flake each was recovered from Levels 6 (98.98–98.88 m) and 9 (98.68–98.58 m), and three bone fragments were recovered from Level 12 (98.38–98.28 m) (see Table 15).

Test Unit 7 (99.49–98.58 m Elevation [77–170 cm bs])

Test Unit 7 was one of three test units placed adjacent to Trench 13 and west of Test Unit 6 to further explore the occupation zone that was recorded in Level 4 of TU 6 (99.18–99.08 m). Several large rocks were exposed in Levels 3 and 4 (99.28–99.08 m) and 11 chipped stone flakes and 2.6 g of burned clay were collected from Level 4 (Figure 25). Below the Level 4 occupation zone, one flake each was recovered from Level 7 (98.88–98.78 m) and Level 8 (98.78–98.68 m), and 10.5 g of burned clay were collected from Level 7.

Figure 23. Cluster of burned and unburned rocks in Level 4, Test Unit 6.

Test Unit 8 (99.53–98.63 m Elevation [75–165 cm bs])

Test Unit 8 was excavated just west of Test Unit 7 to further expose the occupation zone at approximately 99.18–99.08 m. Recovery was much lower in this unit than in Test Units 6 and 7. No chipped stone was recovered in the upper five levels of Test Unit 8. However, 40.0 g of burned clay were collected from Levels 3, 4, and 5 (99.33–99.03 m), and one bone fragment was recovered in Level 5 (99.13–99.03 m). Three chipped stone flakes and 6.1 g of burned clay were recovered from Levels 6 and 7 (99.03–98.83 m). The artifact density recorded for Test Unit 8 is very low and does not reflect the density observed elsewhere on site in association with the thin occupation zone.

Test Unit 9 (99.53–98.73 m Elevation [75–155 cm bs])

Test Unit 9 was excavated just west of Test Unit 8 along the north wall of Trench 13. Six chipped stone flakes were recovered in this unit: three in Level 4 (99.23–99.13 m), one in Level 6 (99.03–98.93 m), and two in Level 7 (98.93–98.83 m). In addition, 22.1 g of burned clay were collected from Levels 5 and 6 (99.13–99.03 m). Similar to Test Unit 8, the artifact density is much lower than it was in units excavated further to the east. The occupation zone recorded elsewhere on site is not reflected by cultural material distribution in this unit.

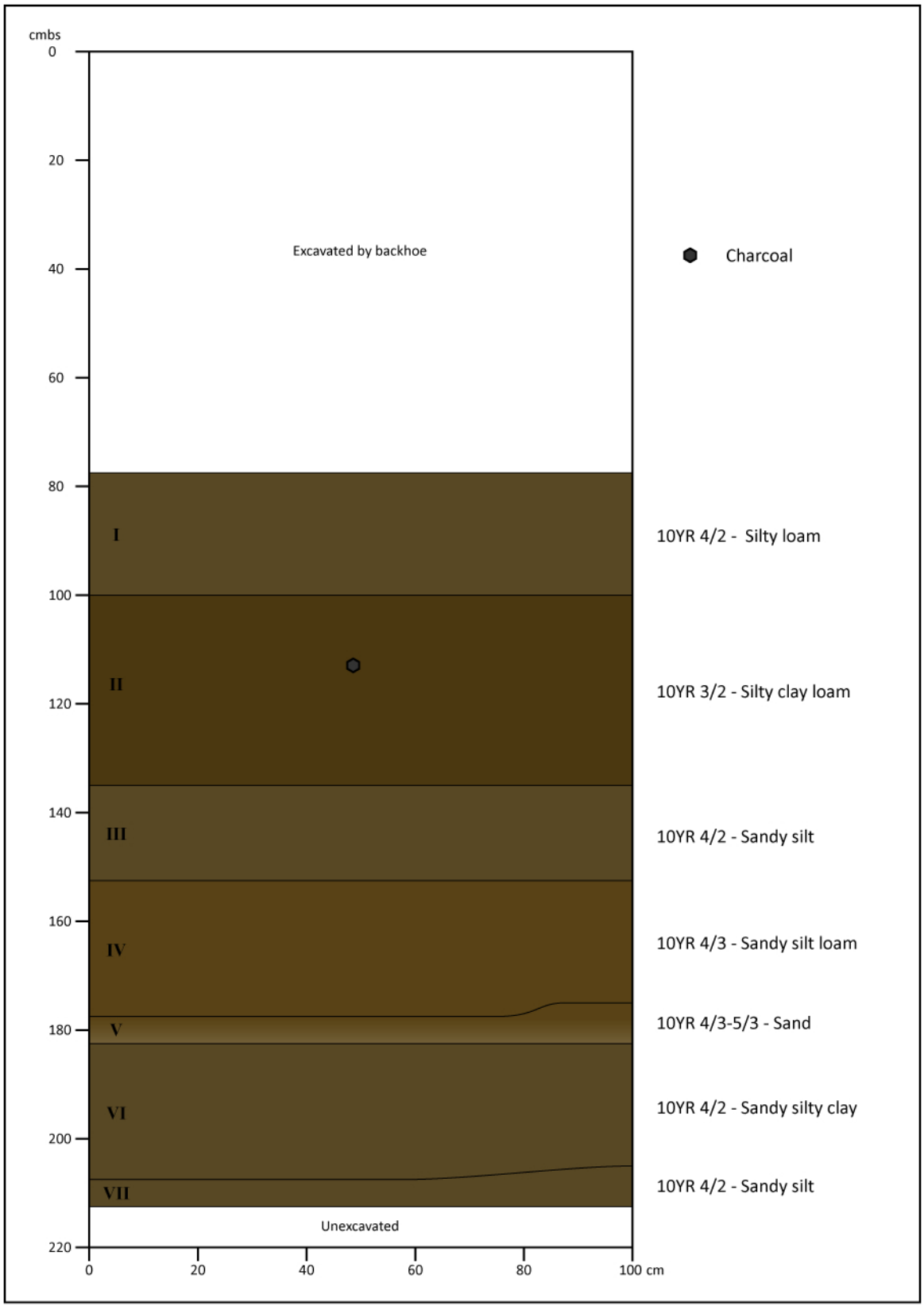

Figure 24. Profile of the northwest wall of Trench 13, Unit 6.

Figure 25. Base of Level 3 with several large rocks exposed.

Summary of Excavations

The excavation of four mechanical trenches and eight hand-excavated units (8.94 cubic m) at site 41BT427 resulted in the identification of only one definable cultural component. This occupation zone appears to lie on a natural surface that slopes down toward North Rocky Creek to the west. The material expression of this occupation was most abundant and apparent in Test Unit 4, Level 2, Feature 1 (99.26–99.16 m), as well as in Test Unit 6, Level 4 (99.18–99.08 m). This indicates only an 8-cm slope of this surface over a distance of approximately 36 m. Charcoal samples from both of these levels were submitted for radiocarbon dating (Beta 236942 and 236943) and produced 2 sigma calibrated results of A.D. 650 to 780 (Cal BP 1300 to 1170) and A.D. 660 to 780 (Cal BP 1290 to 1160). Both AMS dates are consistent with the transitional Late Archaic to Late Prehistoric period in Central Texas. No diagnostic cultural material was collected from the test unit or backhoe trench excavations. It appears that site 41BT427 represents an ephemeral, short-term campsite used by hunter-gatherers, perhaps during a brief foray for resource exploitation along North Rocky Creek.

LABORATORY ANALYSES

The following describes the analyses of all artifacts recovered from the testing of 41BT427. Table 15 quantifies the materials (lithics, shell, vegetal sample, burned clay, bone, and fire-cracked rock) from each of the test units by depth. Detailed discussions of the individual artifact classes follow below.

Faunal Remains

The recovered faunal remains from 41BT427 totaled 50 unworked fragments with 39 unidentified. The identified fragments included three specimens of Small Terrestrial Mammal, one specimen of Medium Terrestrial Mammal, one specimen each of Large Terrestrial Mammal and *Canis* sp., three molluscan specimens, and two unidentifiable specimens of fish (Table 16). Overall, the faunal sample from site 41BT427 was small, poorly preserved and provides little information concerning prehistoric subsistence patterns.

Table 16
Faunal Remains from 41BT427

Small Terrestrial Mammal	n= 3
Medium Terrestrial Mammal	n=1
Large Terrestrial Mammal	n=1
Canis sp.	n=1
Fish sp.	n=2
Mollusca	n=3
Unidentified	n=39
	Total = 50

Botanical Remains

Macrobotanical remains recovered by flotation are given in Tables 17 and 18 by count and weight, respectively. Table 19 lists uncarbonized seeds on a presence/absence basis.

Carbonized Plant Remains

Wood Charcoal

A total of 80 fragments weighing 1.48 g was recovered and 47 fragments were identified (see Table 17). Eleven wood fragments (23 percent) were too small or in too poor condition to be identified more specifically than as a hardwood. Interestingly, oaks make up only 23 percent of the assemblage. Even if all indeterminable fragments were oak, it would still make up less than half the assemblage. Oak typically comprises 60–80 percent of the wood charcoal in burned rock features in Central Texas (Bush 2009, 2010; Mehalchick et al. 2004). Most likely, inhabitants at41BT427 were collecting wood for fuel from the riparian environment in the immediate site area, where pecan, elm, ash, sycamore, and willow or cottonwood are more common than oaks, which dominate the uplands. Although pecan burns nearly as hot as oak and makes good coals, the other woods recovered are of considerably lower quality as firewood. Juniper is absent from the archeological assemblage, both because it is a relatively poor fuelwood and because it would have been restricted to ravines and limestone outcrops in pre-agricultural times (Fonteyn et al. 1988:88).

Table 17
Carbonized Plant Remains from 41BT427 by Count

Plant Remains	FS# / Count			
Provenience	60	61	62	65
Feature type	hearth	non-feature	non-feature	non-feature
Test Unit	4/Feature 1	5	6	7
Depth (cm bs)	85–90	85–95	110–120	110–120
Volume (cu. deciliters)	5	5	5	5
Wood Charcoal				
Plateau live oak *(Quercus fusiformis)*	–	–	6	4
Pecan *(Carya illinoinensis)*	–	–	12	3
Oak *(Quercus* spp.)	1	–	–	–
Elm *(Ulmus* sp.)	–	–	–	3
Ash *(Fraxinus* sp.)	–	–	1	–
Willow/cottonwood family (Salicaceae)	–	–	1	3
Sycamore *(Platanus occidentalis)*	–	–	–	2
Indeterminable hardwood	3	3	–	5
Not examined for species	–	–	22	11
Nutshell				
Pecan *(Carya illinoinensis)*	–	–	6	–
Seeds				
Coralito *(Rivina humilis)*?	–	–	1	–
Indeterminable	–	–	1	–
Indeterminable, probably botanical	3	–	–	2

Table 18
Carbonized Plant Remains from 41BT427 by Weight

Plant Remains	FS# / Weight (in grams)			
Provenience	60	61	62	65
Feature type	hearth	non-feature	non feature	non-feature
Test Unit	4/Feature 1	5	6	7
Depth (cm bs)	85–90	85–95	110–120	110–120
Volume (cu. deciliters)	5	5	5	5
Wood Charcoal				
Plateau live oak *(Quercus fusiformis)*	–	–	0.03	0.02
Pecan *(Carya illinoinensis)*	–	–	0.09	0.01
Oak *(Quercus* spp.)	0.01	–	–	–
Elm *(Ulmus* sp.)	–	–	–	0.01
Ash *(Fraxinus* sp.)	–	–	0.04	–
Willow/cottonwood family (Salicaceae)	–	–	1.00	0.01
Sycamore *(Platanus occidentalis)*	–	–	0.01	0.01
Indeterminable hardwood	0.01	0.01		0.01
Not examined for species	–	–	0.19	0.02

Table 18 (cont'd)

Plant Remains	FS# / Weight (in grams)			
Nutshell				
Pecan *(Carya illinoinensis)*	–	–	0.01	–
Seeds				
Coralito *(Rivina humilis)*?	–	–	0.01	–
Indeterminable	–	–	0.01	–
Indeterminable, probably botanical	0.01	–	–	0.01

Table 19
Uncarbonized Seeds from 41BT427

Plant Remains	FS# / Presence/Absence			
Provenience	60	61	62	65
Depth (cm bs)	85–90	85–95	110–120	110–120
Volume (cu. deciliters)	5	5	5	5
Presence/Absence				
Grass family (Poaceae)	X	–	X	X
Mesquite *(Prosopis* sp.)	–	–	–	X
Hackberry *(Celtis* sp.)	–	–	–	X
Sandmat *(Chamaesyce* sp.)	–	–	–	X
Unknown (samara, 7 mm)	–	X	–	–

Nutshell

Six fragments of pecan nutshell were recovered from FS#62. Pecan nutshell is unlikely to have been carbonized incidental to the burning of pecan wood, since pecan nuts do not cling to the tree branches as the hulls do. Rather, it represents a probable ancient food resource for inhabitants of the site. Grant Hall (2000:109–110) points out that the fat in pecan nuts may have been critical to hunter-gatherers who relied on lean meat for a portion of the year. Nutritional data for pecans are given in Table 20.

Seeds

Two seeds were recovered from Test Unit 6. One seed is approximately one-third complete and cannot be identified. The other seed is saucer-shaped, 1.5 mm in diameter, sparsely papillate in texture, with a triangular hilum nearly identical to that of pokeweed *(Phytolacca americana)*. An identification of coralito *(Rivina humilis)* is suggested. Coralito, also called pigeon-berry or rougeplant, is a more delicate relative of pokeweed that grows in woodlands near streams. It has smaller seeds than pokeweed. The seed texture is described as hairy (Diggs et al. 1999:882), whereas pokeweed seeds are smooth. Both pokeweed and coralito are considered toxic, but their berries make excellent red dyes (Correll and Johnston 1970; Tull 1987).

Table 20
Nutrient Values for Pecan Nuts per 100 g Edible Portion

Water (g)	3.52
Energy (kcal)	691.00
Energy (kj)	2889.00
Protein (g)	9.17
Total lipid (g)	71.97
Ash (g)	1.49
Carbohydrate, by difference (g)	13.86

Source: U.S. Department of Agriculture, Agricultural Research Service 2009

Macroflora from site 41BT427 show selection of wood in the immediate vicinity of the site for fuel despite the relatively low fuel value of some of those taxa. Test Unit 6 also yielded pecan nutshells, indicating exploitation of nut resources that may have provided valuable dietary fat.

Uncarbonized Plant Remains

Most uncarbonized plant remains at 41BT427 appear in the form of rootlets that are clearly modern and not reported here. In addition, five types of uncarbonized seeds were recovered in flotation (see Table 19). Uncarbonized seeds are a common occurrence on most archeological sites, but they usually represent seeds of modern plants that have made their way into the soil either through their own dispersal mechanisms or by faunalturbation, floralturbation, or argilliturbation (Bryant 1985:51–52; Keepax 1977; Miksicek 1987:231–232). In all except the driest areas of North America, uncarbonized plant material on open-air sites can be assumed to be of modern origin unless compelling evidence suggests otherwise (Lopinot and Brussell 1982; Miksicek 1987:231). Although site 41BT427 has offered no such evidence and the seeds are interpreted as modern seed rain, one taxon—hackberry—however, merits further discussion.

Unlike the other uncarbonized seeds from site 41BT427, hackberry seeds are known to persist for many centuries in the soil. Hackberry's high resistance to decay presents particular interpretive difficulties on archeological sites. What archeologists typically recover is the hackberry endocarp, the thick white seedcoat from under the under thin fleshy layer of the fruit. The endocarp has a high mineral content: It contains 40–70 percent aragonite, a crystalline form of calcium carbonate (Wang et al. 1997; Yanovsky et al. 1932). The carbonate helps hackberry endocarps preserve unusually well in the soil, and it makes hackberry endocarps excellent candidates for dating of the geological sediments in which they originated. Yang Wang and colleagues argue that dating of sediments by hackberry inclusions is preferable to other methods. Since the carbonates form over a single growing season, their initial ^{14}C content is the same as that in the atmosphere, and they can be tested for reliability before dating (Wang et al. 1997:342). Hackberry endocarps are surprisingly common in geological and archeological strata (Wang et al. 1997:337), but they are not necessarily archeological in origin. The difficulty for archeobotanists is determining whether the hackberry endocarps represent the traces of human hackberry use or merely the presence of hackberries at the site location (or the location at which the site sediments originated).

The single, whole hackberry seed from FS#65 at 41BT427 is white in color and therefore has not been exposed to the cultural agent of fire as the demonstrably ancient plants have. Most likely, it represents recent seed rain. Hackberry fruits are a candidate for ancient plant exploitation at 41BT427, however, because they were likely present near the confluence of North Rocky Creek and South Rocky Creek in prehistoric times and were widely used by historic people (Moerman 1998). Nonetheless, the particular hackberry observed in the samples probably does not represent the archeological traces of this activity.

Chipped Stone Tools and Debitage

The lithic assemblage from site 41BT427 consists of one biface fragment and a dart projectile point fragment (see discussions for Test Units 4 and 5, respectively). The 103 pieces of debitage (102 reduction flakes and one piece of shatter) are of various sizes and were quantified by size, raw materials, and heated/not heated categories (Table 21).

Table 21
41BT 427 Lithic Debitage Sorted by Size, Raw Material, and Heated

Size (mm)	Quantity	Material				Not heated
		Edwards Chert	Limestone	Quartzite	Undifferentiated Chert	
0–6.4	29	6	0	2	21	13
6.4–12.7	29	15	0	8	6	9
12.7–19	17	7	0	5	5	7
19–25.4	20	3	1	6	10	6
25.4–38.1	7	2	1	0	4	5
38.1–50.8	1	1	0	0	0	1
Total	103	34	2	21	43	41

The majority of the lithic debitage was 19 mm or smaller with just less than a third of the total assemblage being larger. Among the the debitage, the majority was made from chert (42 percent from undifferentiated chert, 33 percent from fine-grained Edwards chert), 20 percent from quartzite, and a negligible 0.02 percent from limestone. The majority of the assemblage (60 percent) showed some indication (discolored, fractured, or potlidded) of having been affected by fire to some degree.

Baked Clay

Irregular masses of fire-hardened clay were collected during the excavation and returned to the lab for basic quantification (Table 22). The total number of baked clay masses only totaled 22 and all were relatively small at less than 19 mm. Among the collection, only one specimen was found to be impressed daub (Test Unit 8, 125–135 cm bs), with the others showing no indication of impressions. The baked clay specimens were found in Test Units 5, 8, and 9 (85–135 cm bs), as well as from the soil samples taken from Test Units 6 and 7 (100–122 cm bs).

Table 22
41BT 427 Baked Clay Sorted by Size

Size (mm)	Quantity
0–6.4	7
6.4–12.7	13
12.7–19	2 (includes the single piece of impressed baked clay)
Total	22

All baked clay specimens were fired in a low temperature environment as evidence of color change was minimal. With the exception of the impressed specimen, all other examples of baked clay were eroded with sub-rounded edges, suggesting some level of disturbance since their original firing. The impressed specimen has two horizontal impressions, each approximately 1 mm in width, consistent with various small grass taxa. It is unlikely the impressed baked clay specimen represents daub but rather an incidental grass impression within a clay ground surface.

Fire-Cracked Rock

Fire-cracked rock (FCR) collected from the testing was first analyzed for material type and then sorted by size. FCR was the most represented artifact class with a total of 348 fragments, ranging in size from less than 6.4 mm to over 50 mm (Table 23). The majority of the FCR assemblage from site 41BT427 was limestone (n=323, 93 percent); the remaining 15 specimens were of quartzite (n=7), steatite (n=6), and undifferentiated chert (n=2). Test Units 3, 4, 5, 6, 7, 8, and 9 all yielded FCR (n=298). The soil samples from Test Units 5, 7, and 9 additionally produced 50 of the of FCR specimens.

Table 23
41BT427 Fire-Cracked Rock Sorted by Size

Size (mm)	Quantity
0–6.4	96
6.4–12.7	114
12.7–19	63
19–25.4	25
25.4–38.1	30
38.1–50.8	12
>50.8	8
Total	348

CHAPTER 6
SUMMARY AND RECOMMENDATIONS

The test excavation of 41BT427 was designed to collect sufficient data for the evaluation of the eligibility for inclusion in the NRHP and for designation as an SAL as well as its continued research potential. This chapter presents a summary of investigations and recommendations.

ELIGIBILITY CRITERIA

National Register of Historic Places

Archeological sites are evaluated according to criteria based on federal regulations for determining the significance of cultural resources for inclusion in the NRHP. Determinations of eligibility for inclusion in the NRHP are applied following the identification of the following criteria, relevant historical themes, and related research questions:

> The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> (A) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) that are associated with the lives of persons significant in our past; or
>
> (C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (D) that have yielded, or may be likely to yield, information important in prehistory or history[36 CFR § 60.4].

Usually, Criterion D is applied to most prehistoric and many historic sites. Important information is generally recognized to as referring to scientific importance. This importance is, of course, driven by such factors as current research perspectives and the state of available information regarding a particular research topic in a specific research area. Over time, data requirements for some research questions may be addressed to various degrees, even though complementary data are often needed from different temporal periods, geographic settings, or site types to fully

understand the diversity of past human activities. If data approach redundancy, the need for corroborative information from similar sites is diminished. This suggests that information deemed important are tied to both a specific geographical area, reflecting a cultural adaptation or region, and a state of accumulated knowledge regarding a research domain. Archeological sites with integrity containing artifacts and features that can contribute information toward addressing research issues are regarded as significant and are eligible for inclusion in the NRHP.

In many cases, and for various reasons of preservation, site formation processes, or post-depositional disturbances, some archeological remains are generally regarded as having very little or no research potential for contributing useful information toward the understanding of history or prehistory. For instance, an artifact assemblage might be disturbed from its primary context, or components of various temporal periods might be mixed or otherwise not interpretable. In such cases, a site is not regarded as scientifically important, and in general, these kinds of sites are not eligible for inclusion in the NRHP.

State Archeological Landmark

At the state level, archeological sites may be considered significant and be recognized or designated as an SAL, provided that at least one of the following conditions is met:

1. The archeological site is situated on lands owned or controlled by the State of Texas or one of its political subdivisions; or
2. The archeological site is situated on private land which has been specifically designated as an SAL . . . and fits at least one of the following criteria:
   (A) Preservation of materials must be sufficient to allow application of standard archeological techniques to advantage;
   (B) The majority of artifacts are in place so that a significant portion of the site's original characteristics can be defined through investigation;
   (C) The site has the potential to contribute to cumulative culture history by the addition of new information;
   (D) The site offers evidence of unique or rare attributes; and/or
   (E) The site offers a unique and rare opportunity to test techniques, theory, or methods or preservation, thereby contributing to scientific knowledge [Texas Natural Resources Code 1977; Title 9, Chapter 191, Texas Antiquities Committee, Section 191.094 and Chapter 41.7, Antiquities Code of Texas].

SUMMARY

During the current project by Geo-Marine, the bridge replacement area was investigated via backhoe trenches and test units. Thirteen trenches were dug within the project area: nine survey trenches in the northwest, southwest, and southeast quadrants outside the known boundary of site 41BT427, and four trenches within the site itself in the northeast quadrant. The current investigation within site 41BT427 involved the mechanical excavation of the four trenches (29.5 linear meters) and the hand excavation of eight test units (8.94 cubic meters) within the site boundary (an additional test unit was excavated south of the site boundary). Only one definable cultural component (Feature 1) was identified at site 41BT427. The single feature identified consisted of a very small, disarticulated cluster of six burned rocks and included 56 chipped stone flakes and seven bone fragments. No diagnostic material was recovered during excavation.

Backhoe trenching in the northwest, southwest, and southeast quadrants outside the known boundary of site 41BT427 did not reveal any cultural material. Test excavations within site 41BT427 provided sparse data concerning Central Texas prehistoric subsistence, seasonality, chronology and site specific activities. Limited faunal and botanical evidence suggest site inhabitants were targeting terrestrial food sources such as deer and pecan as well aquatic taxa like mussels and fish. The riparian setting of 41BT427 was likely inhabited during the fall season when deer and pecan would have been most plentiful but due to the paucity of data, site usage in other seasons cannot be discounted. All lithic material recovered from test excavations appear to be Edwards Plateau chert with no discernable evidence of imported chipped stone resources. The AMS data from the site's only feature (Feature 1) and associated strata both suggest the sites primary usage dates to the transitional Late Archaic—Late Prehistoric period. No other definitive culturally diagnostic material was recovered from the test excavations. Site activities such as tool maintenance, animal carcass processing and cooking can be tentatively inferred from the recovered lithic, faunal, and FCR evidence.

RECOMMENDATIONS

Testing (i.e. backhoe trenching and one test unit) outside of the site boundary for 41BT427 within the northwest, southwest, and southeast quadrants of the project area failed to detect any cultural material and no further work in these areas is recommended.

Although site 41BT427 does provide some very basic information concerning subsistence, seasonality, mobility, chronology, and site-specific activities, the data as such do not appreciably add to our understanding Central Texas prehistory. The sparse evidence provided by the low-density deposits of site 41BT427 indicates the site has little potential to add further to our understanding of Central Texas prehistory. Thus, site 41BT427 fails to meet the standards of Criterion D or any other significant standard for assessing NRHP or SAL eligibility. Site 41BT427 is recommended as not eligible for NRHP inclusion or for designation as an SAL. No historic properties as defined under 36 CFR 60.4, 13 TAC 26.5(6), 13 TAC 26.5(32), and 13 TAC 26.8 were identified during the archeological investigation of the current project APE. In accordance with 36 CFR 800.4(d)(2) and 13 TAC 26.2, no further investigation is necessary at site 41BT427.

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APPENDIX A

ARTIFACT ANALYSES DATA

Geo-Marine, Inc.
41BT427 Testing GMI # 32004.00.07
Lithic Artifact Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Site 41BT427													
Trench 8, Unit 1 (West ½ of unit, in gravel lens)	50 - 65	2	2	1	Debitage	Flake	Blade	Edwards chert	Discolored	1	25.4-38.1	3.8	
Trench 11, Unit 2 (Point plotted)	100 - 100	15	3	1	Debitage	Flake		Undifferentiated chert	No	1	25.4-38.1	10.1	
Trench 12, Unit 3	55 - 65	5	7		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	12.7-19	2.2	Discarded after analysis;
Trench 12, Unit 3	55 - 65	5	7		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	19-25.4	6.4	Discarded after analysis;
Trench 12, Unit 3	55 - 65	5	7		Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	6.4-12.7	1.9	Discarded after analysis;
Trench 12, Unit 3	65 - 75	6	8		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	25.4-38.1	23.2	Discarded after analysis;
Trench 12, Unit 3	65 - 75	6	8	1	Debitage	Flake		Edwards chert	Fractured	1	0-6.4	0.1	
Trench 12, Unit 3	65 - 75	6	8	2	Debitage	Flake		Edwards chert	Fractured	1	12.7-19	1.1	
Trench 12, Unit 3	65 - 75	6	8		Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	6.4-12.7	2.4	Discarded after analysis;
Trench 12, Unit 3	65 - 75	6	8		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	12.7-19	8.5	Discarded after analysis;
Trench 12, Unit 3	75 - 85	4	9	1	Unworked	FCR	N/A	Limestone	Fractured	1	0-6.4	0.8	

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 12, Unit 3	75 - 85	4	9	2	Unworked	FCR	N/A	Limestone	Fractured	2	12.7-19	4.9	
Trench 12, Unit 3	75 - 85	4	9	3	Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	25.4-38.1	12.2	
Trench 12, Unit 3 (Northwest corner)	85 - 95	7	11		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	6.4-12.7	0.6	Discarded after analysis;
Trench 12, Unit 3	95 - 105	8	12	4	Unworked	FCR	N/A	Limestone	Fractured	1	>50.8	194.9	
Trench 12, Unit 3	95 - 105	8	12	1	Debitage	Flake		Undifferentiated chert	Pot lidded	1	12.7-19	0.9	
Trench 12, Unit 3	105 - 115	9	13		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	12.7-19	0.9	Discarded after analysis;
Trench 12, Unit 3	105 - 115	9	13		Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	25.4-38.1	29.5	Discarded after analysis;
Trench 12, Unit 3	125 - 135	11	15	1	Debitage	Flake		Edwards chert	No	2	6.4-12.7	0.2	
Trench 12, Unit 3	125 - 135	11	15	2	Debitage	Flake		Edwards chert	No	2	12.7-19	0.6	
Trench 12, Unit 3	135 - 145	12	16	1	Debitage	Flake		Edwards chert	No	1	0-6.4	0.1	
Trench 12, Unit 3	135 - 145	12	16	2	Debitage	Flake		Edwards chert	No	2	6.4-12.7	0.4	
Trench 12, Unit 3	135 - 145	12	16	3	Debitage	Flake		Edwards chert	No	1	12.7-19	0.2	
Trench 12, Unit 3	135 - 145	12	16	4	Debitage	Flake		Edwards chert	No	1	6.4-12.7	0.3	

Geo-Marine, Inc.
41BT427 Testing GMI # 32004.00.07
Lithic Artifact Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 12, Unit 3	145 - 155	16	17		Unworked	FCR	N/A	Limestone	Fractured	1	12.7-19	1.2	Discarded after analysis;
Trench 12, Unit 3	175 - 185	18	19		Unworked	FCR	N/A	Limestone	Fractured	1	25.4-38.1	15.0	Discarded after analysis;
Trench 12, Unit 3	185 - 195	19	20		Unworked	FCR	N/A	Limestone	Fractured	5	6.4-12.7	2.1	Discarded after analysis;
Trench 10, Unit 4 (Rock cluster on Backhoe Trench 10 profile)	80 - 95	59	21		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	0-6.4	0.4	Discarded after analysis;
Trench 10, Unit 4 (Rock cluster on Backhoe Trench 10 profile)	80 - 95	59	21		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	12.7-19	2.5	Discarded after analysis;
Trench 10, Unit 4 (Rock cluster on Backhoe Trench 10 profile)	80 - 95	59	21		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	6.4-12.7	3.4	Discarded after analysis;
Trench 10, Unit 4 (Point plotted)	80 - 80	21	22	1	Chipped Stone Tool	Biface	Indeterminate (Fragment)	Edwards chert	No	1	25.4-38.1	4.3	

Geo-Marine, Inc.
41BT427 Testing GMI # 32004.00.07
Lithic Artifact Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	12	Debitage	Flake		Undifferentiated chert	No	8	0-6.4	1.0	
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	11	Unworked	FCR	N/A	Limestone	Fractured and Discolored	25	0-6.4	1.0	
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	10	Unworked	FCR	N/A	Undifferentiated chert	Fractured	1	19-25.4	4.3	heavy fraction
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	9	Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	25.4-38.1	5.3	heavy fraction
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	8	Unworked	FCR	N/A	Limestone	Fractured	1	19-25.4	3.3	heavy fraction
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	7	Unworked	FCR	N/A	Limestone	Fractured and Discolored	6	12.7-19	8.6	heavy fraction
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	1	Debitage	Flake		Undifferentiated chert	No	2	0-6.4	0.0	Heavy Fraction
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	3	Debitage	Flake		Undifferentiated chert	No	1	19-25.4	0.7	Heavy Fraction
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	2	Debitage	Flake		Edwards chert	No	1	0-6.4	0.0	Heavy Fraction
Trench 10, Unit 4 (Point plotted)	87 - 87	23	24	1	Debitage	Flake		Undifferentiated chert	No	1	6.4-12.7	0.2	

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 10, Unit 4 (Point plotted)	88 - 88	24	27	1	Debitage	Flake		Undifferentiated chert	No	1	12.7-19	0.4	
Trench 10, Unit 4	88 - 89	22	28	3	Debitage	Flake		Quartzite	No	2	6.4-12.7	1.1	
Trench 10, Unit 4	88 - 89	22	28	4	Debitage	Flake		Edwards chert	No	1	12.7-19	0.4	
Trench 10, Unit 4	88 - 89	22	28	1	Debitage	Flake		Edwards chert	Discolored	1	25.4-38.1	8.9	
Trench 10, Unit 4	88 - 89	22	28	2	Debitage	Flake		Limestone	No	1	25.4-38.1	7.7	
Trench 10, Unit 4	88 - 89	22	28	5	Debitage	Flake		Limestone	No	1	19-25.4	1.4	
Trench 10, Unit 4	105 - 115	28	30		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	6.4-12.7	0.2	Discarded after analysis;
Trench 10, Unit 4	125 - 135	30	32	1	Debitage	Flake		Edwards chert	Pot lidded	1	19-25.4	2.1	
Trench 10, Unit 4	135 - 145	31	33		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	6.4-12.7	0.7	Discarded after analysis;
Trench 10, Unit 4	165 - 175	52	34	1	Unworked	FCR	N/A	Quartzite	Fractured and Discolored	1	12.7-19	2.9	
Trench 10, Unit 5	75 - 85	50	36		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	38.1-50.8	48.9	Discarded after analysis;
Trench 10, Unit 5	85 - 95	53	38	10	Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	38.1-50.8	54.7	Plotted FCR #3
Trench 10, Unit 5	85 - 95	53	38	5	Unworked	FCR	N/A	Steatite	Fractured and Discolored	16	6.4-12.7	5.7	

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 10, Unit 5	85 - 95	53	38	6	Unworked	FCR	N/A	Limestone	Fractured and Discolored	6	12.7-19	8.4	
Trench 10, Unit 5	85 - 95	53	38	7	Unworked	FCR	N/A	Limestone	Fractured	1	19-25.4	1.6	
Trench 10, Unit 5	85 - 95	53	38	8	Unworked	FCR	N/A	Limestone	Fractured	2	25.4-38.1	25.3	
Trench 10, Unit 5	85 - 95	53	38	9	Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	25.4-38.1	15.9	Plotted FCR #2
Trench 10, Unit 5	85 - 95	53	38	12	Unworked	FCR	N/A	Limestone	Fractured	1	25.4-38.1	15.9	Plotted FCR #5
Trench 10, Unit 5	85 - 95	53	38	11	Unworked	FCR	N/A	Limestone	Fractured	1	25.4-38.1	14.8	Plotted FCR #1
Trench 10, Unit 5	85 - 95	53	38	1	Chipped Stone Tool	Projectile Point		Undifferentiated chert	No	1	25.4-38.1	5.4	
Trench 10, Unit 5	85 - 95	53	38	2	Debitage	Flake		Undifferentiated chert	No	1	19-25.4	1.2	
Trench 10, Unit 5	85 - 95	53	38	14	Unworked	FCR	N/A	Limestone	Fractured	1	38.1-50.8	11.9	Plotted FCR #4
Trench 10, Unit 5	85 - 95	53	38	13	Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	38.1-50.8	28.9	Plotted FCR #5
Trench 10, Unit 5	85 - 95	53	38	15	Unworked	FCR	N/A	Limestone	Fractured	2	38.1-50.8	43.9	
Trench 10, Unit 5	95 - 105	54	39		Unworked	FCR	N/A	Limestone	Fractured	5	12.7-19	10.6	Discarded after analysis;
Trench 10, Unit 5	95 - 105	54	39		Unworked	FCR	N/A	Limestone	Fractured and Discolored	3	6.4-12.7	1.4	Discarded after analysis;
Trench 10, Unit 5	95 - 105	54	39		Unworked	FCR	N/A	Limestone	Fractured	1	>50.8	125.6	Discarded after analysis; FCR plotted in SE corner

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 10, Unit 5	95 - 105	54	39		Unworked	FCR	N/A	Limestone	Fractured	2	38.1-50.8	102.5	Discarded after analysis; FCR plotted in SE corner
Trench 10, Unit 5	95 - 105	54	39		Unworked	FCR	N/A	Limestone	Fractured	1	19-25.4	5.6	Discarded after analysis; FCR plotted in SE corner
Trench 10, Unit 5	95 - 105	54	39		Unworked	FCR	N/A	Limestone	Fractured	1	38.1-50.8	26.8	Discarded after analysis;
Trench 10, Unit 5	95 - 105	54	39		Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	25.4-38.1	55.5	Discarded after analysis;
Trench 10, Unit 5	95 - 105	54	39		Unworked	FCR	N/A	Limestone	Fractured	1	>50.8	129.1	Discarded after analysis;
Trench 10, Unit 5	105 - 115	55	40		Unworked	FCR	N/A	Limestone	Fractured	1	12.7-19	1.1	Discarded after analysis;
Trench 10, Unit 5	125 - 135	49	41		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	6.4-12.7	0.3	Discarded after analysis;
Trench 13, Unit 6	77 - 90	32	42	1	Debitage	Flake		Edwards chert	Pot lidded	1	19-25.4	1.6	
Trench 13, Unit 6 (Point plotted)	108 - 108	36	44	1	Debitage	Flake		Undifferentiated chert	No	1	25.4-38.1	4.4	
Trench 13, Unit 6 (Point plotted)	109 - 109	35	47	1	Debitage	Flake		Edwards chert	Pot lidded	1	0-6.4	0.1	
Trench 13, Unit 6 (Point plotted)	109 - 109	33	48	1	Debitage	Shatter	N/A	Edwards chert	No	1	0-6.4	0.1	

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51		Unworked	FCR	N/A	Limestone	Fractured and Discolored	8	6.4-12.7	4.9	Discarded after analysis; heavy fraction
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	5	Debitage	Flake		Quartzite	Discolored	2	0-6.4	0.1	Heavy Fraction
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	2	Debitage	Flake		Undifferentiated chert	Discolored	1	12.7-19	0.2	Heavy Fraction
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	3	Debitage	Flake		Edwards chert	Pot lidded	3	6.4-12.7	0.2	Heavy Fraction
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	4	Debitage	Flake		Undifferentiated chert	Discolored	11	0-6.4	0.1	Heavy Fraction
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51		Unworked	FCR	N/A	Limestone	Fractured and Discolored	9	0-6.4	0.4	Discarded after analysis; heavy fraction
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	1	Debitage	Flake		Undifferentiated chert	Discolored	5	6.4-12.7	0.4	Heavy Fraction
Trench 13, Unit 6	110 - 120	39	52		Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	12.7-19	2.1	Discarded after analysis;
Trench 13, Unit 6	110 - 120	39	52	9	Debitage	Flake		Edwards chert	Discolored	1	12.7-19	0.9	

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 13, Unit 6	110 - 120	39	52	10	Debitage	Flake		Edwards chert	Pot lidded	1	12.7-19	0.8	
Trench 13, Unit 6	110 - 120	39	52	4	Debitage	Flake		Edwards chert	Pot lidded	4	6.4-12.7	0.8	
Trench 13, Unit 6	110 - 120	39	52		Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	0-6.4	0.2	Discarded after analysis;
Trench 13, Unit 6	110 - 120	39	52		Unworked	FCR	N/A	Limestone	Fractured and Discolored	7	6.4-12.7	2.9	Discarded after analysis;
Trench 13, Unit 6	110 - 120	39	52	3	Debitage	Flake		Edwards chert	Discolored	1	6.4-12.7	0.2	
Trench 13, Unit 6	110 - 120	39	52	8	Debitage	Flake		Undifferentiated chert	Discolored	2	19-25.4	3.6	
Trench 13, Unit 6	110 - 120	39	52	1	Debitage	Flake		Undifferentiated chert	Discolored	2	19-25.4	3.4	
Trench 13, Unit 6	110 - 120	39	52	7	Debitage	Flake		Quartzite	Discolored	4	6.4-12.7	1.4	
Trench 13, Unit 6	110 - 120	39	52	6	Debitage	Flake		Quartzite	Discolored	5	12.7-19	3.9	
Trench 13, Unit 6	110 - 120	39	52	5	Debitage	Flake		Quartzite	Discolored	5	19-25.4	17.7	
Trench 13, Unit 6	110 - 120	39	52	2	Debitage	Flake		Undifferentiated chert	No	1	25.4-38.1	4.4	
Trench 13, Unit 6	110 - 120	39	52		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	38.1-50.8	35.7	Discarded after analysis;
Trench 13, Unit 6	130 - 140	45	56	1	Debitage	Flake		Edwards chert	No	1	38.1-50.8	6.6	
Trench 13, Unit 6	160 - 170	46	57	1	Debitage	Flake		Undifferentiated chert	No	1	12.7-19	0.5	

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 13, Unit 7 (Soil sample)	100 - 110	63	60		Unworked	FCR	N/A	Limestone	Fractured and Discolored	3	0-6.4	0.2	Discarded after analysis;
Trench 13, Unit 7 (Soil sample)	100 - 110	63	60		Unworked	FCR	N/A	Limestone	Fractured	1	12.7-19	5.8	Discarded after analysis;
Trench 13, Unit 7 (Soil sample)	100 - 110	63	60	1	Debitage	Flake		Edwards chert	Pot lidded	1	19-25.4	3.1	
Trench 13, Unit 7	110 - 120	71	61	1	Debitage	Flake		Edwards chert	Pot lidded	1	6.4-12.7	0.1	
Trench 13, Unit 7	110 - 120	71	61	2	Debitage	Flake		Undifferentiated chert	No	1	25.4-38.1	7.3	
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	0-6.4	0.2	Discarded after analysis; heavy fraction
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62		Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	6.4-12.7	1.0	Discarded after analysis; heavy fraction
Trench 13, Unit 7 (Soil sample from possible feature)	118 - 122	64	64		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	6.4-12.7	0.5	Discarded after analysis;

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 13, Unit 7 (Soil sample from possible feature)	118 - 122	64	64		Unworked	FCR	N/A	Limestone	Fractured and Discolored	7	0-6.4	0.3	Discarded after analysis;
Trench 13, Unit 7	140 - 150	75	67		Unworked	FCR	N/A	Limestone	Fractured	4	6.4-12.7	2.0	Discarded after analysis;
Trench 13, Unit 7	140 - 150	75	67		Unworked	FCR	N/A	Limestone	Fractured	1	19-25.4	7.3	Discarded after analysis;
Trench 13, Unit 7	140 - 150	75	67		Unworked	FCR	N/A	Limestone	Fractured	7	0-6.4	0.4	Discarded after analysis;
Trench 13, Unit 7	140 - 150	75	67	1	Debitage	Flake		Undifferentiated chert	No	1	19-25.4	3.2	
Trench 13, Unit 7	150 - 160	76	68	1	Debitage	Flake		Edwards chert	No	1	6.4-12.7	0.2	
Trench 13, Unit 8	95 - 105	79	71		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	0-6.4	0.2	Discarded after analysis;
Trench 13, Unit 8	95 - 105	79	71		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	19-25.4	12.2	Discarded after analysis;
Trench 13, Unit 8	105 - 115	80	72	1	Unworked	FCR	N/A	Limestone	Fractured and Discolored	3	0-6.4	0.3	
Trench 13, Unit 8	105 - 115	80	72	7	Unworked	FCR	N/A	Quartzite	Fractured and Discolored	1	>50.8	431.0	Two pieces that crossmend
Trench 13, Unit 8	105 - 115	80	72	6	Unworked	FCR	N/A	Quartzite	Fractured and Discolored	1	38.1-50.8	35.9	
Trench 13, Unit 8	105 - 115	80	72	5	Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	25.4-38.1	4.3	

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 13, Unit 8	105 - 115	80	72	4	Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	19-25.4	23.9	
Trench 13, Unit 8	105 - 115	80	72	3	Unworked	FCR	N/A	Limestone	Fractured and Discolored	9	12.7-19	24.3	
Trench 13, Unit 8	105 - 115	80	72	2	Unworked	FCR	N/A	Limestone	Fractured and Discolored	3	6.4-12.7	1.4	
Trench 13, Unit 8	115 - 125	81	73	8	Unworked	FCR	N/A	Limestone	Fractured	1	38.1-50.8	39.6	
Trench 13, Unit 8	115 - 125	81	73	3	Unworked	FCR	N/A	Quartzite	Fractured and Discolored	1	0-6.4	0.2	
Trench 13, Unit 8	115 - 125	81	73	4	Unworked	FCR	N/A	Limestone	Fractured and Discolored	14	6.4-12.7	5.8	
Trench 13, Unit 8	115 - 125	81	73	5	Unworked	FCR	N/A	Limestone	Fractured and Discolored	8	12.7-19	8.9	
Trench 13, Unit 8	115 - 125	81	73	6	Unworked	FCR	N/A	Limestone	Fractured and Discolored	8	19-25.4	38.7	
Trench 13, Unit 8	115 - 125	81	73	7	Unworked	FCR	N/A	Limestone	Fractured and Discolored	3	25.4-38.1	47.9	
Trench 13, Unit 8	125 - 135	82	74	1	Debitage	Flake		Undifferentiated chert	No	1	19-25.4	2.8	
Trench 13, Unit 8	125 - 135	82	74		Unworked	FCR	N/A	Limestone	Fractured and Discolored	3	6.4-12.7	0.9	Discarded after analysis;
Trench 13, Unit 8	135 - 145	83	75	2	Debitage	Flake		Undifferentiated chert	No	1	12.7-19	0.3	
Trench 13, Unit 8	135 - 145	83	75	1	Debitage	Flake		Undifferentiated chert	Pot lidded	1	19-25.4	2.9	Discolored
Trench 13, Unit 8	135 - 145	83	75		Unworked	FCR	N/A	Limestone	Fractured and Discolored	9	6.4-12.7	7.1	Discarded after analysis;

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 13, Unit 8	135 - 145	83	75		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	12.7-19	1.4	Discarded after analysis;
Trench 13, Unit 8	135 - 145	83	75		Unworked	FCR	N/A	Limestone	Fractured and Discolored	5	19-25.4	19.5	Discarded after analysis;
Trench 13, Unit 8	135 - 145	83	75		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	25.4-38.1	66.6	Discarded after analysis;
Trench 13, Unit 8	135 - 145	83	75		Unworked	FCR	N/A	Quartzite	Fractured and Discolored	2	12.7-19	2.4	Discarded after analysis;
Trench 13, Unit 8	155 - 165	84	76		Unworked	FCR	N/A	Limestone	Fractured	5	25.4-38.1	136.0	Discarded after analysis;
Trench 13, Unit 9	105 - 115	57	78		Unworked	FCR	N/A	Limestone	Fractured	3	25.4-38.1	61.8	Discarded after analysis;
Trench 13, Unit 9	105 - 115	57	78		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	12.7-19	6.7	Discarded after analysis;
Trench 13, Unit 9	105 - 115	57	78		Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	>50.8	292.3	Discarded after analysis;
Trench 13, Unit 9	105 - 115	57	78	1	Debitage	Flake		Quartzite	Discolored	2	6.4-12.7	2.2	
Trench 13, Unit 9	105 - 115	57	78	2	Debitage	Flake		Quartzite	Discolored	1	19-25.4	3.1	
Trench 13, Unit 9	105 - 115	57	78		Unworked	FCR	N/A	Limestone	Fractured and Discolored	5	6.4-12.7	2.5	Discarded after analysis;
Trench 13, Unit 9	115 - 125	58	79		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	12.7-19	4.6	Discarded after analysis;
Trench 13, Unit 9	115 - 125	58	79		Unworked	FCR	N/A	Limestone	Fractured and Discolored	12	6.4-12.7	3.3	Discarded after analysis;
Trench 13, Unit 9	115 - 125	58	79		Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	25.4-38.1	11.0	Discarded after analysis;

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 13, Unit 9	115 - 125	58	79		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	0-6.4	0.3	Discarded after analysis;
Trench 13, Unit 9 (Soil sample from southwest corner)	115 - 125	66	80		Unworked	FCR	N/A	Limestone	Fractured and Discolored	7	0-6.4	0.5	Discarded after analysis;
Trench 13, Unit 9 (Soil sample from southwest corner)	115 - 125	66	80		Unworked	FCR	N/A	Limestone	Fractured and Discolored	4	6.4-12.7	1.4	Discarded after analysis;
Trench 13, Unit 9 (Soil sample from southwest corner)	115 - 125	66	80	1	Debitage	Flake		Edwards chert	Discolored	1	0-6.4	0.1	
Trench 13, Unit 9	125 - 135	70	81	7	Unworked	FCR	N/A	Limestone	Fractured and Discolored	15	0-6.4	0.4	
Trench 13, Unit 9	125 - 135	70	81	4	Unworked	FCR	N/A	Limestone	Fractured	1	19-25.4	6.1	
Trench 13, Unit 9	125 - 135	70	81	5	Unworked	FCR	N/A	Limestone	Discolored	3	12.7-19	4.6	
Trench 13, Unit 9	125 - 135	70	81	6	Unworked	FCR	N/A	Limestone	Fractured	1	>50.8	76.4	
Trench 13, Unit 9	125 - 135	70	81	1	Debitage	Flake		Undifferentiated chert	No	1	19-25.4	1.3	

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Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Material	Heat Treatment	Qty	Size (in mm)	Weight (in g)	Comments
Trench 13, Unit 9	125 - 135	70	81	3	Unworked	FCR	N/A	Limestone	Discolored	5	6.4-12.7	2.0	
Trench 13, Unit 9 (Soil sample from fill around stain)	139 - 159	68	83	1	Unworked	FCR	N/A	Limestone	Fractured and Discolored	2	0-6.4	0.1	
Trench 13, Unit 9 (Soil sample from fill around stain)	139 - 159	68	83	3	Unworked	FCR	N/A	Limestone	Fractured and Discolored	1	6.4-12.7	0.4	
Trench 13, Unit 9 (Soil sample from fill around stain)	139 - 159	68	83	2	Unworked	FCR	N/A	Undifferentiated chert	Fractured and Discolored	1	0-6.4	0.1	

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GMI 32004.00.07, 41BT427 Testing
Animal Bone Analysis Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Species	Bone	Other Observations	Weight (g)	Qty	Comment
Trench 10 (mid-length, mid-trench)	75 - 75	1	84	1	Canis	Humerus	End=W Frag=11 Butchery=F Gnaw=rodent	41	6	
Trench 10 (mid-length, mid-trench)	75 - 75	1	84	2	Large terrestrial mammal	Skull	End=F Frag=5	7	1	
Trench 11, Unit 2	210 - 220	20	6	1	Paper pondshell	Mussel shell fragment		4	9	
Trench 12, Unit 3	115 - 125	10	14	1	Medium terrestrial mammal	Long bone fragment	End=F Frag=5	2.6	1	
Trench 12, Unit 3	95 - 105	8	12	2	Uni. Mussel shell fragment	Mussel shell fragment		0.5	1	
Trench 10, Unit 4 (Point plotted)	87 - 87	26	25	1	Uni	Uni	End=F Frag=1 Bum=W	0.1	1	
Trench 10, Unit 4 (Point plotted)	88 - 88	25	26	1	Uni	Uni	End=F Frag=1	0.05	3	
Trench 10, Unit 5	75 - 85	50	36	1	Small terrestrial mammal	Long bone fragments	End=F Frag=2	1.2	3	
Trench 10, Unit 5	85 - 95	61	37	2	Uni fish species	Scales	Frag=1	0.01	2	
Trench 10, Unit 5	85 - 95	53	38	4	Uni. Mussel shell fragment	Mussel shell fragment		0.05	1	
Trench 13, Unit 6 (Point plotted)	108 - 108	34	45	1	Uni	Uni	End=F Frag=5 Burn=B	1.2	1	

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Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Species	Bone	Other Observations	Weight (g)	Qty	Comment
Trench 13, Unit 6 (Point plotted)	108 - 108	38	43	1	Uni	Uni	End=F Frag=1 Bum=W	0.1	2	
Trench 13, Unit 6 (Point plotted)	110 - 110	41	49	1	Uni	Uni	End=F Frag=2	1.1	2	
Trench 13, Unit 6	110 - 120	39	52	11	Uni	Uni	End=F Frag=2	2.7	2	
Trench 13, Unit 6	110 - 120	39	52	12	Uni	Uni	End=F Frag=2 Bum=B	1	2	
Trench 13, Unit 6	110 - 120	39	52	13	Uni	Uni	End=F Frag=1	0.7	16	
Trench 13, Unit 6 (Point plotted)	114 - 114	42	53	1	Uni	Uni	End=F Frag=2	0.2	2	
Trench 13, Unit 6 (Point plotted)	114 - 114	42	53	2	Uni	Uni	End=F Frag=1 Burn=S	0.6	1	
Trench 13, Unit 6 (Point plotted)	116 - 116	43	54	1	Uni	Uni	End=F Frag=2	0.6	3	
Trench 13, Unit 6	190 - 200	48	59	1	Uni	Uni	End=F Frag=2	0.6	3	
Trench 13, Unit 7 (Soil sample)	100 - 110	63	60	3	Uni	Uni	End=F Frag=1	0.05	1	
Trench 13, Unit 7 (Soil sample)	100 - 110	63	60	4	Uni. Mussel shell fragment	Mussel shell fragment		0.7	9	
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	9	Uni	Uni	End=F Frag=1	0.05	1	

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Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Species	Bone	Other Observations	Weight (g)	Qty	Comment
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	10	Uni	Uni	End=F Frag=2 Bum=B	0.05	2	
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	11	Uni fish species	Vertebra	Frag=1	0.01	1	
Trench 13, Unit 8	115 - 125	81	73	2	Uni	Uni	End=F Frag=1	0.1	1	
Trench 13, Unit 8	135 - 145	83	75	3	Uni	Uni	End=F Frag=1 Bum=W	0.3	1	
Trench 13, Unit 9	105 - 115	57	78	3	Uni	Uni	End=F Frag=2	0.1	1	
Trench 13, Unit 9	105 - 115	57	78	4	Uni. Mussel shell fragment	Mussel shell fragment	End=Mussel shell fragment	1.3	1	

Geo-Marine, Inc.
GMI 32004.00.07, 41BT427 Testing
Baked Clay Analysis Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Size (in mm)	Weight (g)	Qty	Comment
Trench 10, Unit 5	85 - 95	53	38	3	Baked Clay	Baked Clay - Unimpressed	12.7-19	6.5	3	
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	14	Baked Clay	Baked Clay - Unimpressed	0-6.4	0.2	7	heavy fraction
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	15	Baked Clay	Baked Clay - Unimpressed	6.4-12.7	0.3	3	heavy fraction
Trench 13, Unit 7 (Soil sample)	100 - 110	63	60	2	Baked Clay	Baked Clay - Unimpressed	6.4-12.7	0.2	2	
Trench 13, Unit 7 (Soil sample from possible feature)	118 - 122	64	64	1	Baked Clay	Baked Clay - Unimpressed	6.4-12.7	0.2	1	
Trench 13, Unit 7 (Point plotted)	120 - 120	73	65	1	Baked Clay	Baked Clay - Unimpressed	6.4-12.7	1.1	3	
Trench 13, Unit 8	105 - 115	80	72	9	Baked Clay	Baked Clay - Unimpressed	6.4-12.7	0.2	1	
Trench 13, Unit 8	115 - 125	81	73	1	Baked Clay	Baked Clay - Unimpressed	6.4-12.7	0.5	1	
Trench 13, Unit 8	125 - 135	82	74	2	Baked Clay	Impressed daub	6.4-12.7	0.4	1	
Trench 13, Unit 8	125 - 135	82	74	3	Baked Clay	Baked Clay - Unimpressed	6.4-12.7	0.3	1	
Trench 13, Unit 9	115 - 125	58	79	1	Baked Clay	Baked Clay - Unimpressed	6.4-12.7	0.7	3	
Trench 13, Unit 9	125 - 135	70	81	2	Baked Clay	Baked Clay - Unimpressed	12.7-19	2.5	2	

Geo-Marine, Inc.
41BT427 Testing GMI # 32004.00.07
Vegetal Analysis Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Weight (g)	Qty	Comment
Trench 8, Unit 1 (Possible burned root)	15 - 30	69	1	1	Vegetal	Indeterminate		0.3	69	
Trench 11, Unit 2 (Point plotted)	100 - 100	13	4	1	Vegetal	Charcoal		0.05	5	Weight records as <0.1 g
Trench 11, Unit 2 (Point plotted)	101 - 101	14	5	1	Vegetal	Charcoal		0.05	7	Weight records as <0.1 g
Trench 12, Unit 3	115 - 125	10	14	2	Vegetal	Charcoal		2	19	
Trench 12, Unit 3	125 - 135	11	15	3	Vegetal	Charcoal		0.8	39	
Trench 12, Unit 3	135 - 145	12	16	5	Vegetal	Charcoal		0.05	1	Weight records as <0.1 g
Trench 12, Unit 3	145 - 155	16	17	1	Vegetal	Nut shell	Burned	0.05	1	Charred nut shell
Trench 12, Unit 3	165 - 175	17	18	1	Vegetal	Charcoal		0.3	1	
Trench 12, Unit 3	175 - 185	18	19	1	Vegetal	Charcoal		0.9	9	
Trench 12, Unit 3	75 - 85	4	9	4	Vegetal	Charcoal		0.6	22	
Trench 12, Unit 3	85 - 95	3	10	1	Vegetal	Charcoal		0.4	3	
Trench 12, Unit 3	95 - 105	8	12	5	Vegetal	Charcoal		0.3	2	
Trench 10, Unit 4	105 - 115	28	30	1	Vegetal	Charcoal		0.4	17	
Trench 10, Unit 4	115 - 125	29	31	1	Vegetal	Charcoal		0.05	10	Weight records as <0.1 g

Geo-Marine, Inc.
41BT427 Testing GMI # 32004.00.07
Vegetal Analysis Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Weight (g)	Qty	Comment
Trench 10, Unit 4	125 - 135	30	32	2	Vegetal	Charcoal		0.05	2	Weight records as <0.1 g
Trench 10, Unit 4	175 - 185	51	35	1	Vegetal	Charcoal		0.4	3	
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	4	Vegetal	Wood charcoal	Quercus sp.	0.005	1	actual weight records as <.01 g
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	5	Vegetal	Carbonized botanical	Indeterminate	0.005	3	actual weight records as <.01 g
Trench 10, Unit 4 (Feature 1)	85 - 90	60	23	6	Vegetal	Wood charcoal	Hardwood	0.005	3	actual weight records as <.01 g
Trench 10, Unit 5	105 - 115	55	40	1	Vegetal	Charcoal		1.8	20	
Trench 10, Unit 5	85 - 95	61	37	1	Vegetal	Wood charcoal	Hardwood	0.01	3	
Trench 13, Unit 6 (Point plotted)	108 - 109	37	46	1	Vegetal	Charcoal		0.05	14	Weight records as <0.1 g
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	6	Vegetal	Wood charcoal	Not examined for species	0.19	22	
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	7	Vegetal	Carbonized seed	cf. Rivina sp.	0.005	1	Weight recorded as <.01 g
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	8	Vegetal	Wood charcoal	Quercus fusiformis	0.03	6	
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	9	Vegetal	Wood charcoal	Fraxinus sp.	0.04	1	

Geo-Marine, Inc.
41BT427 Testing GMI # 32004.00.07
Vegetal Analysis Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Weight (g)	Qty	Comment
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	10	Vegetal	Carbonized seed	Indeterminate	0.005	1	Weight recorded as <.01 g
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	11	Vegetal	Wood charcoal	Salicaceae	0.005	1	Weight recorded as <.01 g
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	12	Vegetal	Wood charcoal	Carya illinoinensis	0.09	12	
Trench 13, Unit 6 (Soil sample)	110 - 120	62	51	13	Vegetal	Carbonized nut shell	Carya illinoinensis	0.01	6	
Trench 13, Unit 6	120 - 130	44	55	1	Vegetal	Charcoal		0.9	20	
Trench 13, Unit 6	180 - 190	47	58	1	Vegetal	Charcoal		0.05	20	Weight records as <0.1 g
Trench 13, Unit 7 (Soil sample)	100 - 110	63	60	5	Vegetal	Nut shell	Hackberry shell	0.01	16	
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	1	Vegetal	Wood charcoal	Carya illinoinensis	0.01	3	
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	2	Vegetal	Wood charcoal	Ulmus sp.	0.01	3	
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	3	Vegetal	Wood charcoal	Platanus occidentalis	0.005	2	Weight recorded as <.01 g
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	4	Vegetal	Wood charcoal	Not examined for species	0.02	11	
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	5	Vegetal	Wood charcoal	Quercus fusiformis	0.02	4	

Geo-Marine, Inc.
41BT427 Testing GMI # 32004.00.07
Vegetal Analysis Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Weight (g)	Qty	Comment
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	6	Vegetal	Wood charcoal	Salicaceae	0.01	3	0
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	7	Vegetal	Wood charcoal	Hardwood	0.01	5	
Trench 13, Unit 7 (Soil sample)	110 - 120	65	62	8	Vegetal	Carbonized botanical	Indeterminate	0.01	2	
Trench 13, Unit 7 (Point plotted)	115 - 115	72	63	1	Vegetal	Charcoal		0.3	50	
Trench 13, Unit 7 (Point plotted)	120 - 122	74	66	1	Vegetal	Charcoal		0.6	22	
Trench 13, Unit 7	140 - 150	75	67	2	Vegetal	Charcoal		0.5	25	
Trench 13, Unit 7 (Point plotted)	152 - 152	78	69	1	Vegetal	Charcoal		0.6	18	
Trench 13, Unit 7 (Point plotted)	158 - 162	77	70	1	Vegetal	Charcoal		0.05	50	Weight records as <0.1 g
Trench 13, Unit 8	105 - 115	80	72	8	Vegetal	Charcoal		0.2	40	
Trench 13, Unit 8	115 - 125	81	73	9	Vegetal	Charcoal		0.2	2	
Trench 13, Unit 8	135 - 145	83	75	4	Vegetal	Charcoal		0.3	3	
Trench 13, Unit 8	155 - 165	84	76	1	Vegetal	Charcoal		0.2	2	
Trench 13, Unit 9	105 - 115	57	78	5	Vegetal	Charcoal		0.3	3	

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Vegetal Analysis Data

Unit No.	Depth (cm)	FS No.	Lot No.	Artifact No.	Class	Type	Other	Weight (g)	Qty	Comment
Trench 13, Unit 9	125 - 135	70	81	8	Vegetal	Charcoal		0.1	15	
Trench 13, Unit 9	95 - 105	56	77	1	Vegetal	Charcoal		0.1	3	

APPENDIX B

PLANT REMAINS FROM SITE 41BT427

PLANT REMAINS FROM
SITE 41BT427
BURNET COUNTY, TEXAS

March 5, 2010

Prepared for:
Melissa M. Green, RPA
Principal Investigator
Geo-Marine, Inc.
2201 K Avenue, Suite A2
Plano, Texas 75074

Prepared by:
Leslie L. Bush, Ph.D., R.P.A.
Macrobotanical Analysis
12308 Twin Creeks Rd., B-106
Manchaca, Texas 78652

Four flotation samples from Site 41BT427 were submitted for identification and analysis of botanical macroremains. The flotation samples represent three features and non-feature fill for a total of twenty cubic deciliters of soil matrix. The site is situated in northwestern Burnet County on a low terrace of North Rocky Creek approximately 500 meters above its confluence with South Rocky Creek.

Site setting

Site 41BT427 lies in the Lampassas cut plain, a vegetation area grouped variously with the Edwards Plateau (Riskind and Diamond 1988) or the Cross Timbers (Diggs et al. 1999; Gould 1962). A mosaic of grasslands and woodlands characterizes the vegetation. Grasslands are mixed prairie, with tall, medium and short grasses present. Upland trees and shrubs typically grow in mottes of oaks, juniper, and agarito. Yaupon and deciduous holly, elbowbush, persimmon, and sumac are common small trees and shrubs. Moister areas along streams and mesic slopes support trees such as sycamore, pecan, hackberry and elm (Beaty 1978; Riskind and Diamond 1988).

Site 41BT427 is at the southeastern edge of the Paluxy formation (Mehalchick et al. 2004:Figure 1.1), a geological formation associated with archaeological indications of geophyte processing. Soils at 41BT427, however, are generally alluvial in origin rather than outcroppings of Paluxy sands (THC site form, 7/10/2007). Excavators describe site soils as silty or sandy clay loam. According to survey maps, soil associations in the site area are Oakalla silty clay loams (Soil Survey Staff 2010).

Methods

Flotation samples were processed at Geo-Marine Inc's Plano offices in a Siraf tank flotation system with bottom mesh openings of 0.5 mm (Pearsall 2000:Figure 2.21). Flotation and carbon samples were sent to Macrobotanical Analysis in February 2010.

Flotation samples were sorted according to standard procedures (Pearsall 2000). Each sample was weighed on an Ohaus Scout II 200 x 0.01 g electronic balance before being size-sorted through a stack of graduated geologic mesh. Materials that did not pass through the No. 10 mesh (2 mm square openings) were completely sorted. At 41BT427, only three categories were present larger than 2 mm: carbonized macrobotanical remains, identifiable bones, and contamination. The "contamination" category includes uncarbonized botanical remains such as rootlets and hackberry seeds, gastropod and bivalve shells, soil clumps, and rocks. All carbonized botanical remains and identifiable bones were counted, weighed, recorded, and labeled. Contamination was weighted, recorded, and labeled only. Materials that fell through the 2 mm mesh ("residue") were examined under a stereoscopic microscope at 7-45 X magnification for carbonized botanical remains. Identifiable material was removed from residue, counted, weighed, recorded, and labeled. Although wood charcoal smaller than 2 mm is not usually removed from residue, so little wood charcoal was present in three of the samples that wood charcoal greater than 0.7 mm was removed from FS#60 and FS#61 and wood charcoal greater than 1.4 mm was removed from FS#65. Uncarbonized macrobotanical remains were recorded on a presence/absence basis on laboratory forms.

For each flotation sample, wood charcoal fragments were selected at random for identification. Fragments were snapped to reveal a clean transverse section and examined under a stereoscopic microscope at 28-180 X magnification. When necessary, tangential or radial sections were examined for ray seriation, presence of spiral thickenings, types and sizes of intervessel pitting, and other minute characteristics that can only be seen at the higher magnifications of this range.

Botanical materials were identified to the lowest possible taxonomic level by comparison to materials in the Macrobotanical Analysis comparative collection and through the use of standard reference works (e.g., Core et al. 1979; Davis 1993; Hoadley 1990; Martin and Barkley 1961; Musil 1963; Panshin and de Zeeuw 1980). Plant nomenclature follows that of the PLANTS Database (USDA, NRCS 2010).

Results

Macrobotanical remains recovered by flotation are given in Tables B-1 and B-2 by count and weight, respectively. Table B-3 lists uncarbonized seeds on a presence/absence basis.

Table B-1
Carbonized Plant Remains from 41BT427, Counts

FS#	**60**	**61**	**62**	**65**
Feature type	hearth	non-feature	hearth	hearth
Test Unit	4	5	6	7
Depth (cmbg)	85-90	85-95	110-120	110-120
Volume (cu. deciliters)	5	5	5	5
Wood charcoal				
Plateau live oak *(Quercus fusiformis)*			6	4
Pecan *(Carya illinoinensis)*			12	3
Oak *(Quercus* spp.)	1			
Elm *(Ulmus* sp.)				3
Ash *(Fraxinus* sp.)			1	
Willow/cottonwood family (Salicaceae)			1	3
Sycamore *(Platanus occidentalis)*				2
Indeterminable hardwood	3	3		5
Not examined for species			22	11
Nutshell				
Pecan *(Carya illinoinensis)*			6	
Seeds				
Coralito *(Rivina humilis)*?			1	
Indeterminable			1	
Indeterminable, probably botanical	3			2

Table B-2
Carbonized Plant Remains from 41BT427, Weight in Grams

FS#	**60**	**61**	**62**	**65**
Feature type	hearth	non-feature	hearth	hearth
Test Unit	4	5	6	7
Depth (cmbg)	85-90	85-95	110-120	110-120
Volume (cu. deciliters)	5	5	5	5
Wood charcoal				
Plateau live oak *(Quercus fusiformis)*			0.03	0.02
Pecan *(Carya illinoinensis)*			0.09	0.01
Oak *(Quercus* spp.)	0.01			
Elm *(Ulmus* sp.)				0.01
Ash *(Fraxinus* sp.)			0.04	
Willow/cottonwood family (Salicaceae)			1	0.01
Sycamore *(Platanus occidentalis)*			0.01	0.01
Indeterminable hardwood	0.01	0.01		0.01
Not examined for species			0.19	0.02
Nutshell				
Pecan *(Carya illinoinensis)*			0.01	
Seeds				
Coralito *(Rivina humilis)*?			0.01	
Indeterminable			0.01	
Indeterminable, probably botanical	0.01			0.01

Table B-3
Uncarbonized Seeds from 41BT427, Presence/Absence

FS#	**60**	**61**	**62**	**65**
Depth (cmbg)	85-90	85-95	110-120	110-120
Volume (cu. deciliters)	5	5	5	5
Grass family (Poaceae)	X		X	X
Mesquite *(Prosopis* sp.)				X
Hackberry *(Celtis* sp.)				X
Sandmat *(Chamaesyce* sp.)				X
Unknown (samara, 7 mm)		X		

Uncarbonized plant remains

Most uncarbonized plant remains at 41BT427 appear in the form of rootlets that are clearly modern and not reported here. In addition, five types of uncarbonized seeds were recovered in flotation (see Table B-3). Uncarbonized seeds are a common occurrence on most archaeological sites, but they usually represent seeds of modern plants that have made their way into the soil either through their own dispersal mechanisms or by faunalturbation, floralturbation, or argilliturbation (Bryant 1985:51-52; Keepax 1977; Miksicek 1987:231-232). In all except the driest areas of North America, uncarbonized plant material on open-air sites can be assumed to be of modern origin unless compelling evidence suggests otherwise (Lopinot and Brussell 1982; Miksicek 1987:231). Site 41BT427 has offered no such evidence, and the seeds are interpreted as modern seed rain. One taxon, however, merits further discussion.

The hackberry problem. Unlike the other uncarbonized seeds from site 41BT427, hackberry seeds are known to persist for many centuries in the soil. Hackberry's high resistance to decay presents particular interpretive difficulties on archaeological sites. What archaeologists typically recover is the hackberry endocarp, the thick white seedcoat from under the under thin fleshy layer of the fruit. The endocarp has a high mineral content: It contains 40-70 percent aragonite, a crystalline form of calcium carbonate (Wang et al. 1997; Yanovsky et al. 1932). The carbonate helps hackberry endocarps preserve unusually well in the soil, and it makes hackberry endocarps excellent candidates for dating of the geological sediments in which they originated. Yang Wang and colleagues argue that dating of sediments by hackberry inclusions is preferable to other methods. Since the carbonates form over a single growing season, their initial ^{14}C content is the same as that in the atmosphere, and they can be tested for reliability before dating (Wang et al. 1997:342). Hackberry endocarps are surprisingly common in geological and archaeological strata (Wang et al. 1997:337) – but they are not necessarily archaeological in origin. The difficulty for archaeobotanists is determining whether the hackberry endocarps represent the traces of human hackberry use or merely the presence of hackberries at the site location (or the location at which the site sediments originated).

The single, whole hackberry seed from FS#65 at 41BT427 is white in color and therefore has not been exposed to the cultural agent of fire as the demonstrably ancient plants have. Most likely, it represents recent seed rain. Hackberry fruits are a candidate for ancient plant exploitation at 41BT427, however, because they were likely present near the confluence of North Rocky Creek and South Rocky Creek in prehistoric times and were widely used by historic people (Moerman 1998). The particular hackberry observed in the samples, however, probably does not represent the archaeological traces of this activity. Further discussion of the plant remains from 41BT427 concerns carbonized plants only.

Carbonized plant remains

Wood charcoal. A total of 80 fragments weighing 1.48 g were recovered and 47 fragments were identified (Figure B-1). Eleven wood fragments (23%) were too small or in too poor condition to be identified more specifically than as a hardwood. Interestingly, oaks make up only 23% of the assemblage. Even if all indeterminable fragments were oak, it would still make up less than half the assemblage. Oak typically comprises 60-80 percent of the wood charcoal in burned rock features in central Texas (Mehalchick et al. 2004; Bush 2009; Bush 2010). Most likely, inhabitants at 41BT427 were collecting wood for fuel from the riparian environment in the immediate site area, where pecan, elm, ash, sycamore, and willow or cottonwood are more common than oaks, which dominate the uplands. Although pecan burns nearly as hot as oak and

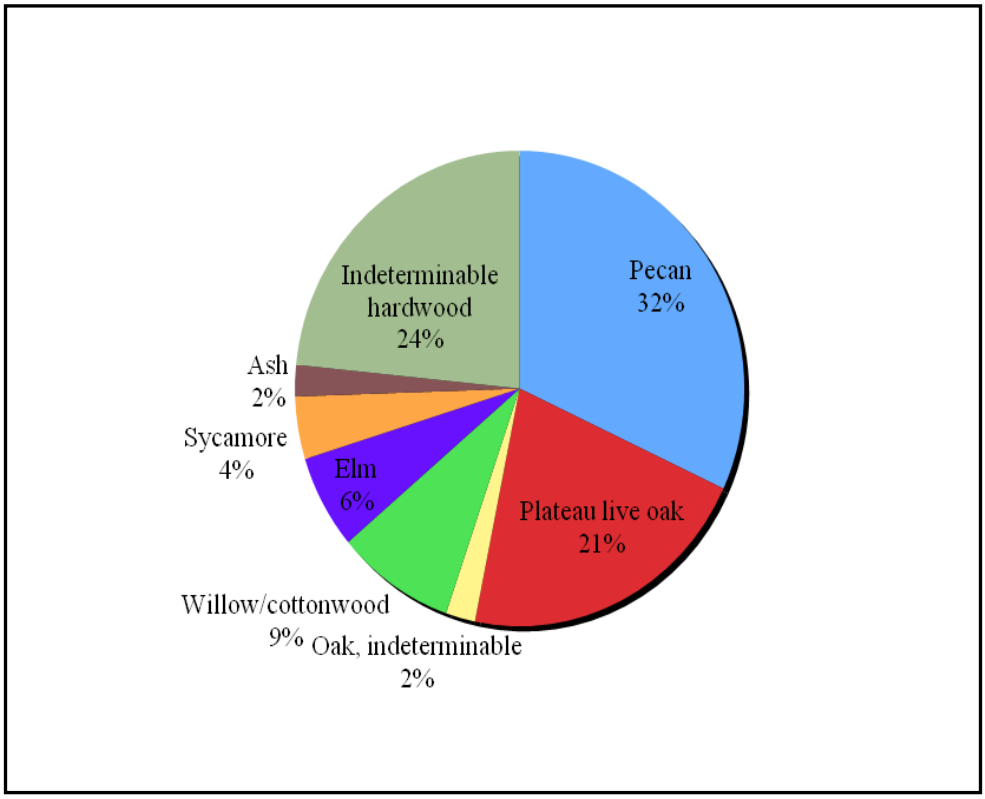

Figure B-1. Wood charcoal from site 41BT427 (n=47).

makes good coals, the other woods recovered are of considerably lower quality as firewood. Juniper is absent from the archaeological assemblage, both because it is a relatively poor fuelwood and because it would have been restricted to ravines and limestone outcrops in pre-agricultural times (Fonteyn et al. 1988:88).

Nutshell. Six fragments of pecan nutshell were recovered from FS#62. Pecan nutshell is unlikely to have been carbonized incidental to the burning of pecan wood, since pecan nuts do not cling to the tree branches as the hulls do. Rather, it represents a probable ancient food resource for inhabitants of the site. Grant Hall points out that the fat in pecan nuts may have been critical to hunter-gatherers who relied on lean meat for a portion of the year (Hall 2000:109-110). Nutritional data for pecans are given in Table B-4.

Seeds. Two seeds were recovered from Feature 6, one of the three hearths. One seed is approximately one-third complete and cannot be identified. The other seed is saucer shaped, 1.5 mm in diameter, sparsely papillate in texture, with a triangular hilum nearly identical to that of pokeweed *(Phytolacca americana)*. An identification of coralito *(Rivina humilis)* is suggested. Coralito, also called pigeon-berry or rougeplant, is a more delicate relative of pokeweed that grows in woodlands near streams. It has smaller seeds than pokeweed. The seed texture is described as hairy (Diggs et al. 1999:882), whereas pokeweed seeds are smooth. Both pokeweed and coralito are considered toxic, but their berries make excellent red dyes (Correll and Johnston 1970; Tull 1987).

Table B-4
Nutrient Values for Pecan Nuts per 100 g Edible Portion
(USDA, ARS 2009)

Water (g)	3.52
Energy (kcal)	691
Energy (kj)	2889
Protein (g)	9.17
Total lipid (g)	71.97
Ash (g)	1.49
Carbohydrate, by difference (g)	13.86

Summary

Macroflora from Site 41BT427 show selection of wood in the immediate vicinity of the site for fuel despite the relatively low fuel value of some of those taxa. Feature 6 yielded pecan nutshells, indicating exploitation of nut resources that may have provided valuable dietary fat. The three samples from feature (hearth) contexts contained a higher density of carbonized botanical material than did the non-feature sample (FS#61).

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Yanovsky, E., E. K. Nelson and R. M. Kingsbury
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APPENDIX C

RESULTS OF RADIOCARBON DATING

Dr. James Abbott

Report Date: 11/27/2007

Texas Department of Transportation

Material Received: 11/5/2007

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 236942	1320 +/- 40 BP	-25.9 o/oo	1310 +/- 40 BP
SAMPLE : BT427-TU4-L2			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal AD 650 to 780 (Cal BP 1300 to 1170)			
Beta - 236943	1270 +/- 40 BP	-24.0 o/oo	1290 +/- 40 BP
SAMPLE : BT427-TU6-L4			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal AD 660 to 780 (Cal BP 1290 to 1160)			

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.9:lab. mult=1)

Laboratory number: **Beta-236942**

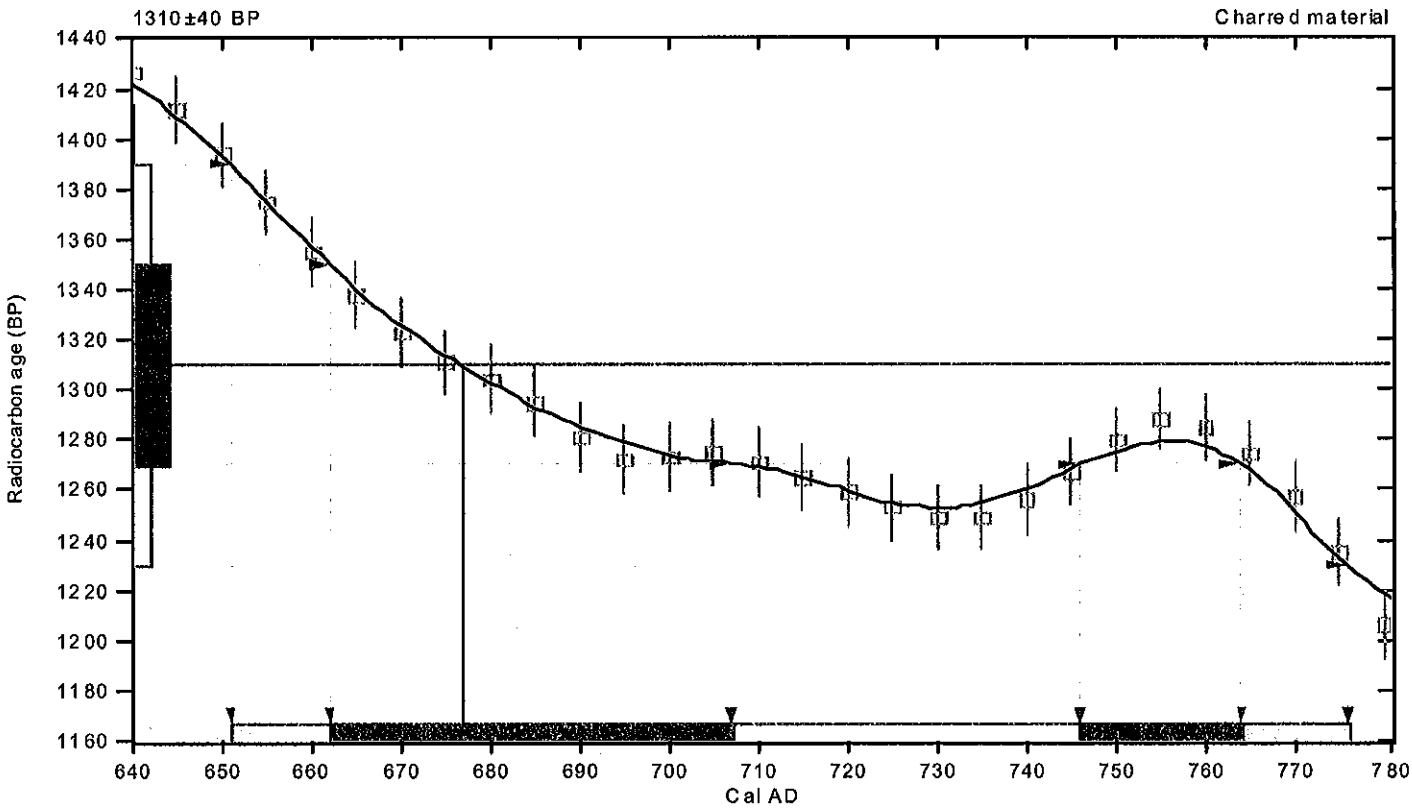
Conventional radiocarbon age: **1310±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 650 to 780 (Cal BP 1300 to 1170)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 680 (Cal BP 1270)

1 Sigma calibrated results: (68% probability) Cal AD 660 to 710 (Cal BP 1290 to 1240) and Cal AD 750 to 760 (Cal BP 1200 to 1190)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24:lab. mult=1)

Laboratory number: **Beta-236943**

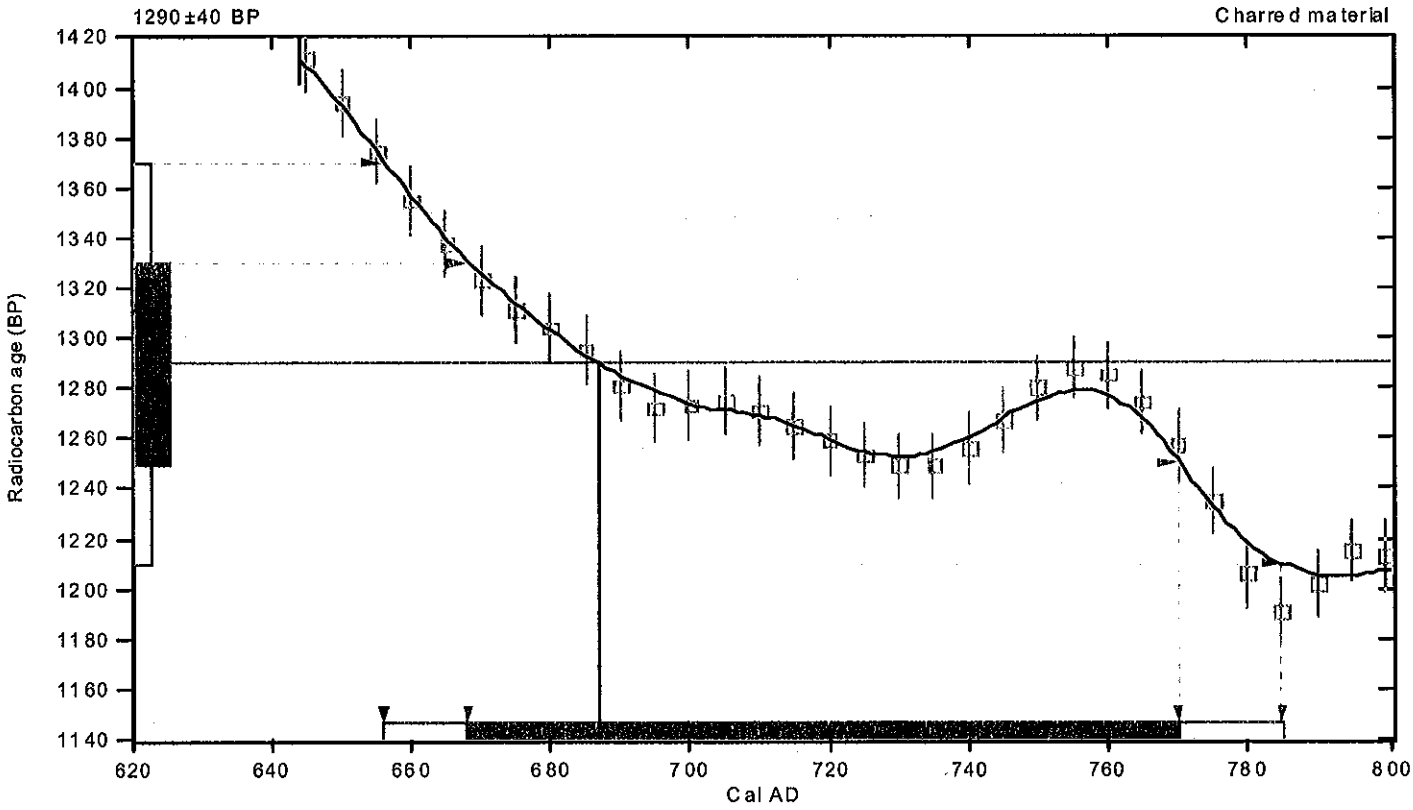
Conventional radiocarbon age: **1290±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 660 to 780 (Cal BP 1290 to 1160)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 690 (Cal BP 1260)

1 Sigma calibrated result: (68% probability) Cal AD 670 to 770 (Cal BP 1280 to 1180)



References:

Database used

INTCAL04

Calibration Database

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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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